

# Commissioning Operating instructions

Power Quality Analysis Software

WebPQ™ Visualizer







**Hint:**

Please note that these operating instructions may not always reflect the current software version. For example, if you update the software of the unit, the present description may no longer fit in every point.

In this case, either contact us directly or use the current version of the operating instructions available on our website ([www.a-eberle.de](http://www.a-eberle.de)).

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# 1. User guidance

The operating instructions summarise all important information for installation and operation. Read the operating instructions completely and do not use the product until you have understood them.


## 1.1 Target Group

These operating instructions are intended for trained specialist personnel as well as trained and tested operating personnel. The contents of these operating instructions must be made available to the persons entrusted with the installation and operation of the system.

## 1.2 Warnings


### ► Structure of the warnings


Warnings are structured as follows:


 <b>SIGNAL WORD</b>	<b>Nature and source of the danger!</b> Consequences of non-compliance. ➡ Measure to avoid the danger.
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### ► Gradation of the warnings

Warnings differ according to the type of danger as follows:

 <b>DANGER!</b>	Warns of an imminent danger that will result in death or serious injury if not avoided.
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 <b>WARNING!</b>	Warns of a potentially dangerous situation that will result in death or serious injury if not avoided.
--	--

 <b>CAUTION!</b>	Warns of a potentially dangerous situation that will result in moderate or minor injury if not avoided.
--	---

<b>NOTE!</b>	Warns of a potentially dangerous situation that will result in property or environmental damage if not avoided.
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## 1.3 Notes



Tips on the proper use of the software and recommendations.

## 1.4 More symbols

### ▶ Instructions for action

Structure of the instructions for action:

➡ Instructions for an action.

↪ Result information if required.

### ▶ Listen

Structure of unnumbered lists:

- List levels 1
- List level 2

Building numbered lists:

- 1) List Level 1
- 2) List Level 1
  1. List Level 2
  2. List Level 2

## 1.5 Applicable documents

For safe and correct use of the software, also observe the additional documents supplied as well as relevant standards and laws.

## 1.6 Storage

Keep the operating instructions, including the applicable documents, within easy reach near the system.



## 2. Scope of delivery/order features

### 2.1 Scope of delivery

- Installation file
- Licence agreements
- Licence File

### 2.2 Order features

Features	Identifier
<p><b>WebPQVisualizer*</b></p> <p>The fully responsive &amp; web-based user interface as an installable app for the evaluation of your power quality data in your <u>local</u> IT environment!</p> <p>State-of-the-art web technology with</p> <ul style="list-style-type: none"><li>● Grid Overview Dashboard - detect grid faults at a glance!</li><li>● Analysis section - get to the bottom of causes of network disturbances individually</li><li>● -Configurable REST API - open for data exchange in your company</li><li>● -Safe and secure! IT Security via full User Rights Management System!</li></ul> <p>Updates within one year are free of charge**</p> <p>Service by the service department of A-Eberle GmbH is recommended for first-time installation!</p> <p><b>System requirements:</b></p> <p>WinPQ version higher than version 6.4 with PostgreSQL, MS SQL, MySQL (v5)</p> <p>Supported browsers: Microsoft Edge, Mozilla Firefox or Google Chrome, Safari.</p> <p>Please also note our other system requirements on the homepage!</p>	<i>WebPQVisualizer</i>
<p><b>WebPQVisualizer</b> incl. free number of unit views / max. 10 units (users) / 12 months update capability** (delivery via cloud)</p>	900.9265.00
<p><b>Subsequent licence extensions WebPQVisualizer</b></p> <ul style="list-style-type: none"><li>● WebPQ Addon 10 Units (Units + User)</li><li>● WebPQ Addon 50 Units (Units + User)</li><li>● WebPQ Addon 100 Units (Units + User)</li></ul>	900.9266.60 900.9266.61 900.9266.62
<p><b>Maintenance contract WebPQVisualizer**</b></p> <p>For a period of 12 months. Includes all updates and upgrades for the WebPQVisualizer software during this period. Delivery via CLOUD".</p>	900.9265.20



\* Licence model is independent of the WinPQ!

\*\* After expiry of the update period, the number of updates not carried out must be purchased!



## 2.3 System requirements:

### 2.3.1 Supported Operating Systems & Browsers

- Windows 8 64 Bit\*
- Windows 10 64 Bit
- Windows 11
- Windows Server 2012 (R2) \*
- Windows Server 2016 (R2)
- Windows Server 2019
- Windows Server 2022
- WebPQ: Chrome, Firefox, Microsoft Edge, Safari

\* up to version 6.2 / WebPQ excluded

### 2.3.2 Supported database systems

- PostgreSQL = 14\*
- MySQL V5.X (version is part of the licence key, see price list)
- Maria DB V5.X (version is part of the licence key, see price list)
- MSSQL (Version 2012- 2019) \*\*

\*PostgreSQL is supported from WinPQ > 6.2.

\*\*individual order process and licence key are necessary!

#### 2.3.2.1 Database settings

##### ► MYSQL

The following additional settings in MY.ini are necessary for the WebPQ Visualizer:

```
[MySQLd]
datadir="C:\Program Files (x86)\WinPQ\MySQL\Data"
port=3306
max_allowed_packet=32M
max_user_connections=200
```

By default, the My.ini is located on the WinPQ data server under: C:\Program Files (x86)\WinPQ\MySQL. If a different installation path has been chosen then under %WinPQInstallationDirectory%\MySQL



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### 2.3.3 Minimum system requirements

- CPU: 4 cores
- RAM: 8 GB RAM
- Memory: 20 GB for installation and an additional 1 GB per year per connected measuring device (when using the standard profiles).
- Network: Ethernet adapter for communication with TCP/IP PQ devices
- Display: Remote desktop connection or monitor with min. resolution 1280 x 1024 pixels

### 2.3.4 Recommended system configuration

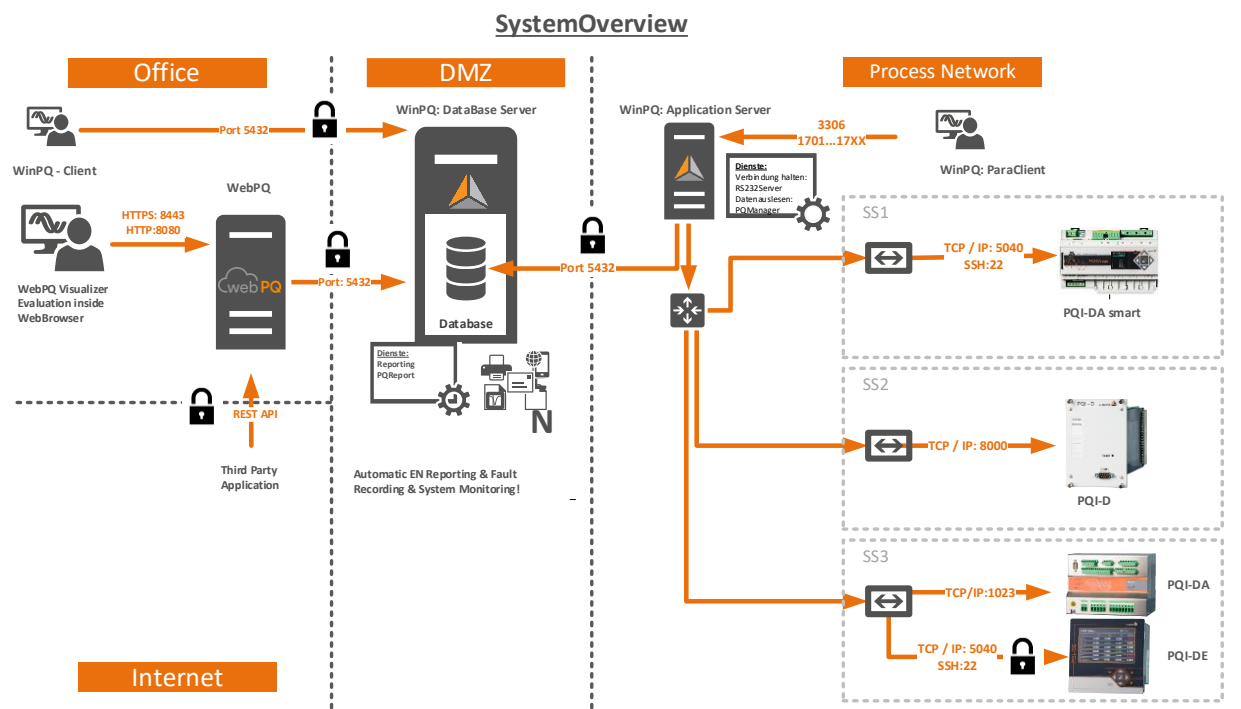
- Hardware: Server (24h/365days) operation designed / Virtual server system
- CPU: CPU with 4 or more cores
- RAM: 8 GB or more RAM
- Memory: 20 GB for WinPQ installation and additionally 1 GB per year per connected measuring device (when using the standard profiles) with redundancy and automatic backup
- Database: Solid-state disk Data carrier for the database
- Network: Ethernet adapter with high data throughput for communication with TCP/IP devices
- Display: Remote desktop connection or monitor with high resolution (e.g. 1920x1200 pixels)

### 2.3.5 Recommended tools:

- PDF – Reader
- Installed Browser
- Database tool such as <https://dbeaver.io/> (universal for all supported databases)



## 2.3.6 Typical system configuration / system diagram / definition of terms



### ▶ WinPQ Database Server

Host on which the database (MySQL, MS-SQL, MariaDB, PostgreSQL) is running.

### ▶ WinPQ Application Server

Host on which the processes for reading out the data of the measuring instruments as well as the reporting run. The central parameterisation, firmware update processes of the measuring instruments and the basic setting of the software are usually also carried out via this host.

### ▶ WinPQ client

Host on which parameterisation (access ports as described in chapter 2.3.7 described) is carried out. Often, however, only visualisation and evaluation are permitted on the WinPQ clients (ports for parameterisation are then blocked).

### ▶ WebPQVisualizer

Host on which the visualisation solution WebPQ<sub>Visualizer</sub> is installed. This host provides a web server for the WebPQ<sub>Visualizer</sub> clients for visualisation in the clients' browser. The administration (chapter 5.3) takes place on this host

### ▶ WebPQVisualizer Client

Host on which the actual analysis of the measurement data takes place using a browser. This host is often found in the office network.



There is also the opportunity to install all the processes and applications on one server!



## 2.3.7 Required standard ports

Unlocking ports in gateways and firewalls are to be carried out from line to column (e.g. from the WinPQ client, the approval to the server is to be carried out with port 5432 in order to enable measurement data visualisations on the client).

	WinPQ server	WinPQ Client	WebPQVisualizer	WebPQVisualizer Browser	PQI-D (REG-COM)	PQI-DA	PQI-DA <i>smart</i> PQI-DE
WinPQ Server					8000 (TCP) 1111 (TCP) Parameterisation	1023	5040 (TCP - CCCI) 22 (TCP - SSH)
WinPQ client	3306 (SQL) 5432 (PostGre) 1701...170X*						5040 (TCP - CCCI) 22 (TCP - SSH)
WebPQVisualizer	3306 (SQL) 5432 (PostGre)						
WebPQVisualizer Browser			8443 (HTTPS) 8080 (HTTP)				
PQI-D (REG-COM)							
PQI-DA							
PQI-DA <i>smart</i> PQI-DE							

\*If the WinPQ required client connection to the measuring instruments is by the application, exactly one port is required per connection to the PQI-D or PQI-DA measuring instrument. Example: If two PQI-D's with REG-COM are connected to the WinPQ server via a connection with IP 192.168.100.102 via port 8000, a port e.g. 1701 is required by the WinPQ client for this.



### 3. Safety instructions

- Observe the operating instructions.
- Always keep the operating instructions with the appliance.
- Ensure that only qualified personnel operate the software.
- Ensure that the software is operated exclusively in its original state.
- Ensure that the latest version of the software is always installed

### 4. Intended use

The WebPQ<sub>visualizer</sub> product is used exclusively for evaluating power quality measurement data and energy measurement data in the energy network in low, medium and high voltage. If the software is used in a manner not specified by the manufacturer, damage may occur under certain circumstances!



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## 5. Installation

The installation of the WebPQ<sub>Visualizer</sub> is carried out in several steps and is divided into the installation, the administrative parameterisation and finally the initialisation of the WebPQ<sub>Visualizer</sub>. In general, the basic requirements for installation must be met in advance.

### 5.1 Basic requirements for installation

The basis of the WebPQ<sub>Visualizer</sub> software is an existing database with measurement data of the "WinPQ" software solution from version V6.4 with converted data stock! If you are not sure about this, please contact product support at [pqsys-support@a-eberle.de](mailto:pqsys-support@a-eberle.de).

The software can be installed either directly on the WinPQ application server or on a dedicated Windows server in your local IT environment. Please also note the definitions of terms in chapter 2.3.6.



Please be sure to observe the compatibility information and versions of the supported databases from chapter 2.3.2

Due to the variable client / server structure of the WinPQ database software described in chapter 2.3.6. the variable client / server structure of the WinPQ database software offers a multitude of configuration possibilities. Different parameter specifications must be observed for the different configurations.

#### 1. Standard configuration:

In this configuration, the WinPQ database, the WinPQ application server and the WebPQ<sub>Visualizer</sub> application to be installed here are usually located on one host (PC / server).

- ☒ If your IT environment has a standard configuration, the parameters in the following chapters are already stored with the correct values!

#### 2. Adjusted client/server configuration:

- In this configuration, the database is usually located on a dedicated database server and often also in another network segment.
- ➡ In this type of installation, the port configuration must be known before installation as described in chapter 2.3.7 and opened accordingly in the firewalls or gateways in between!

Before the installation can be started, the following parameters should also be known.

- IP address / host name and port of the database server in which the WinPQ measurement data are stored.
- Type of database server (MSSQL- Microsoft SQL, MySQL, PostgreSQL) with version of database
- Access data (name of the database, user with write access to the database and password of the database) of the existing WinPQ database.



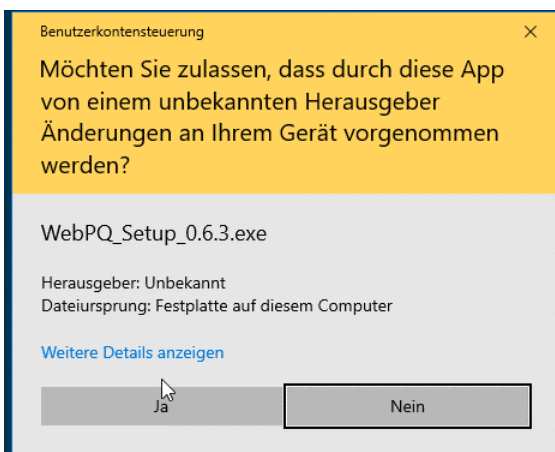
## 5.2 Installation



The WebPQ<sup>visualizer</sup> software is securely delivered to you via an installation wizard "Setup.exe" specifying the version via our portal <https://software.a-eberle.de> with a dedicated one-time access specifying the SHA256 hash sum. If necessary, for your own safety, please check that the checksums given are the same



Administrative rights on the host are necessary for the installation!



The installation of the software is to be started by double-clicking on the application "WebPQ\_Setup\_x.y.z.exe".

Then confirm the installation in the user account control with "YES".

The installation is then started in the directory "C:/Programmes/WebPQ" and carried out automatically.

After the installation is complete, the application tries to set itself up automatically with standard parameters and starts a service "WebPQService.exe" in the Windows system account "System".

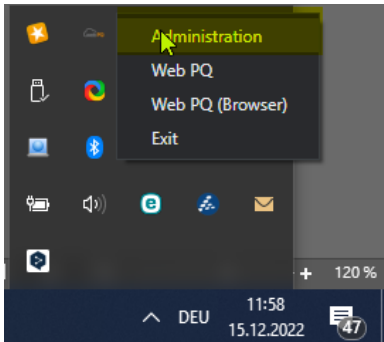
If the default parameters are correct in case of the "Default configuration" described in chapter 5.1, the initialization described in chapter 5.4 will open directly and no adjustment of the administrative parameters is necessary!

If the software application cannot establish a connection to the database server due to different connection data, the administrative parameterisation as described in chapter 5.3 and this interface opens automatically in order to be able to make adjustments.



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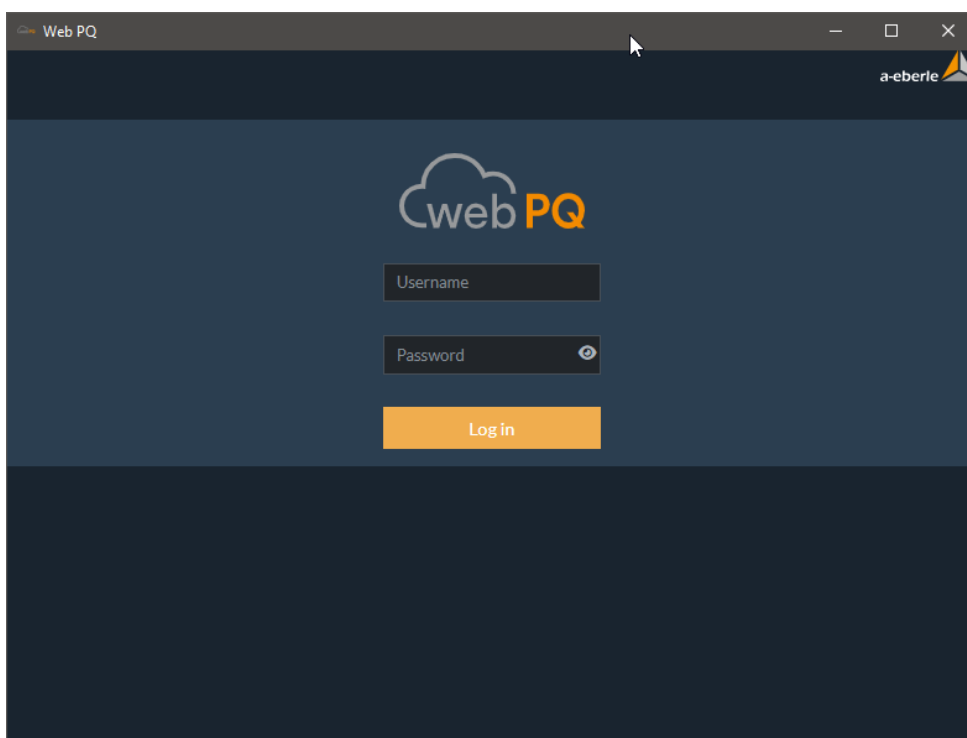
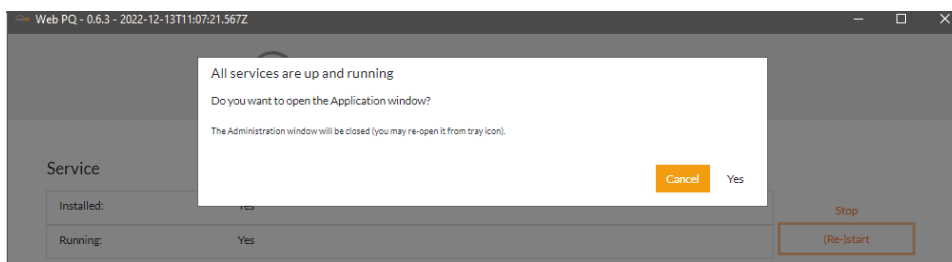
## 5.3 Administrative parameterisation in the app



The administrative interface of the WebPQ<sub>Visualizer</sub> opens in the case of an initial installation with "inappropriate" connection settings or can be opened at any time on the host via the toolbar (on the taskbar next to the clock) by right-clicking on the "WebPQ" icon and then "Administration".

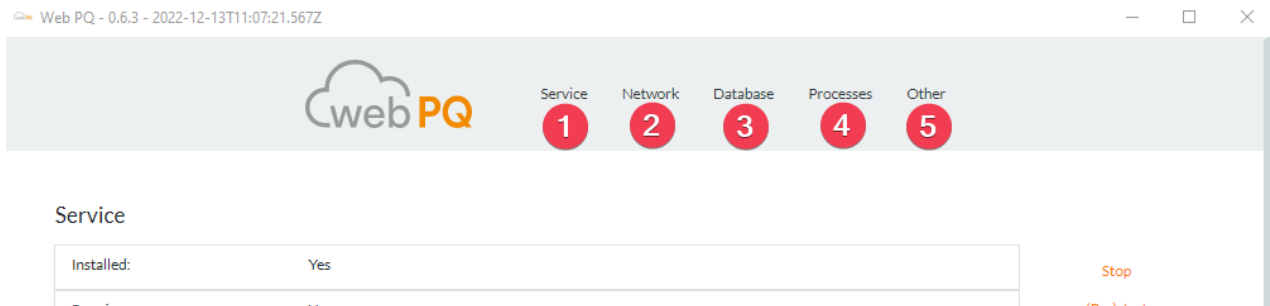
When setting up the software for the first time, it is usually only necessary to set the host name of the database server, the database name and the user and password of the database in the "Database" area.

If all settings are correct, the processes always restart by clicking on the "Update Buttons" and you are asked whether you want to start the application with the embedded web browser. Click on "Yes" to open the WebPQ<sub>Visualizer</sub> in the app.





The administrative interface itself is generally divided into 5 main areas, which can be accessed by clicking on the name.



### 5.3.1 Service

In the "Service" section, the user can monitor (#1) restart (#2) and stop (#3) the status of the background service "WebPQService.exe", which runs in the system account "System".



In general, the service that provides the web server for the clients should be both installed (Installed: YES) and running continuously (Running: YES).



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## 5.3.2 Network / Netzwerk

The settings in this area largely relate to the web server, which is installed on the host (server) in the form of the WebPQ<sub>Visualizer</sub> application and makes the interface available to the clients (evaluation PCs).

The default settings are "security by default". For example, the clients via HTTPS can only reach the Web-server on the installed PC using port 8443 (#2). The service of an unencrypted connection is switched off by default (HTTP) (#1).

In order to use "HTTPS", i.e. the encrypted connection from the client (evaluation PC) to the web server, without an unknown certificate being reported in the browser on the client (evaluation PC), it is recommended to store your own password-protected (#6) certificates in the WebPQ<sub>Visualizer</sub> application (#3 & #4).

The certificates can be stored under the specified path and selected in the programme interface by clicking (#5) on the path.

### Network

The screenshot shows the 'Network' settings window. On the left is a sidebar with categories: HTTP, HTTPS, cert.pem, keys.pem, Passphrase, Analytics, Export, Master-Data, and Storage. The main area contains settings for each category. Red circles with numbers 1 through 7 point to specific elements: 1 points to the 'Enabled' checkbox for HTTP; 2 points to the 'Enabled' checkbox for HTTPS; 3 points to the text input field for the certificate path; 4 points to the text input field for the key path; 5 points to a red speech bubble icon next to the certificate path field; 6 points to the 'No passphrase set' text in the passphrase field; and 7 points to the 'Update' button. The 'Update' button is orange and located at the bottom right of the settings area.

HTTP	<input type="checkbox"/> Enabled Port 8080
HTTPS	<input checked="" type="checkbox"/> Enabled Port 8443
cert.pem	<input type="text" value="C:\ProgramData\aeberle\webpq\keys\https_cert.pem"/>
keys.pem	<input type="text" value="C:\ProgramData\aeberle\webpq\keys\https_key.pem"/>
Passphrase	<input type="text" value="No passphrase set"/> <span>Re-Generate Certificate</span>
Analytics	<input type="text" value="3001"/>
Export	<input type="text" value="3010"/>
Master-Data	<input type="text" value="3004"/>
Storage	<input type="text" value="3016"/>

After changes have been made to the settings, they can be activated via #7 "Update"!

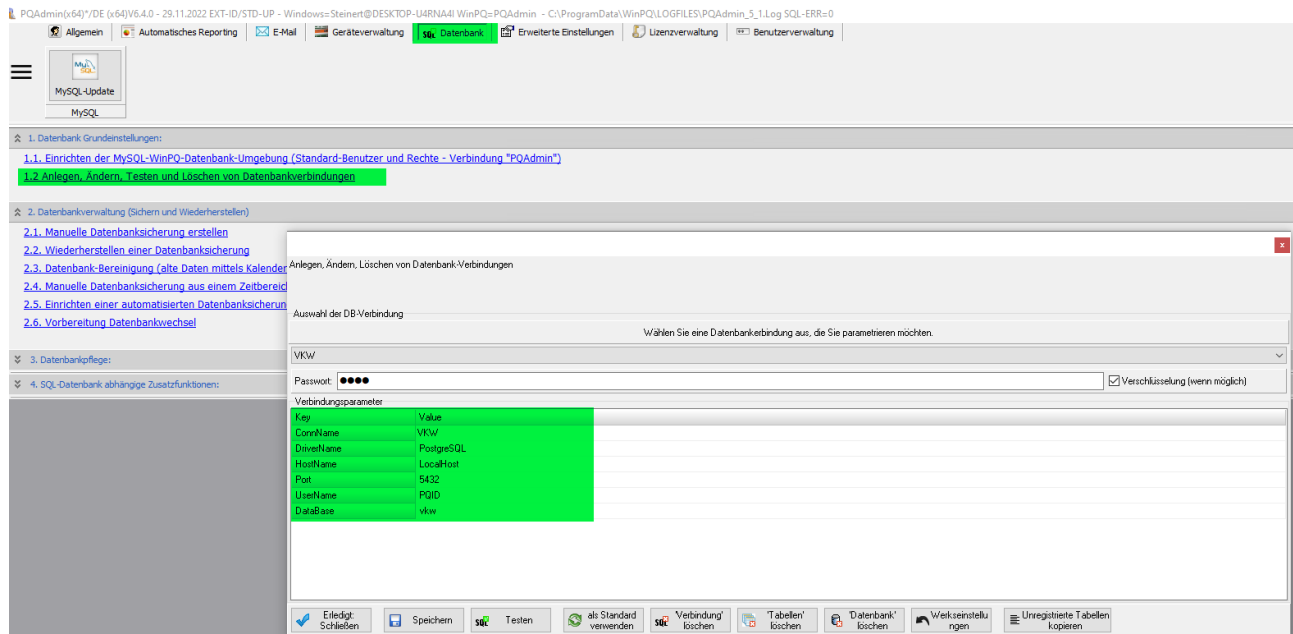
#### NOTE!

Using "unencrypted" connections and unknown certificates may result in "data theft" and "data loss"! We recommend always using the "secure" standard configuration (HTTPS)!



### 5.3.3 Database

The settings in the database area are necessary to establish a connection with the database server that contains the data for the visualisation in the client. The settings for the database connection can be found in WinPQ in the section "System Administration >> Database".



#### Database

Type	1 PostgreSQL	11 Test connection Update 12
Host	2 localhost	
Database Name	3 PQID	
Port	4 5432	
Username	5 PQID	
Password	6 New Password	
Database Schema	7 public	
SSL	8 <input checked="" type="checkbox"/> Use SSL <input checked="" type="checkbox"/> Accept self signed certificates 9	
Precomputation Concurrency	10 3	
<small>Defines the number of concurrent precomputation processes - more means faster precomputation, but may put your database under stress. Precomputation is used to speed up time series when displayed. A good value is 1-5, 0 means no precomputation at all. The precomputation increases disk usage but reduces the time needed for time series chart display. If you encounter database outages from time to time, reduce this value.</small>		

Parameter	Description
<b>#1 Type / Type</b>	Specification of the database used (MySQL / MariaDB, PostgreSQL & MS-SQL)
<b>#2 Host</b>	IP address / host name of the server on which the database is running
<b>#3 DataBase Name</b>	Name of the database in which the measurement data are stored and in which the settings of the WebPQ <sub>visualizer</sub> are also stored.
<b>#4 Port</b>	Specification of the TCP port under which the database server from #2 can be reached.
<b>#5 Username / Benutzername</b>	User name with necessary write access to the database specified in #3.



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**#6 Password /  
Passwort**

Specification of the password for the user of the database connection. The password is stored encrypted in the Windows Security Storage in the system user. For security reasons, it is not possible to read back the password in the user interface! Only one password should be entered if changes are necessary!

**#7 Database Schema /  
Datenbank Schema**

The WebPQ<sub>Visualizer</sub> saves data such as user settings, analyses and much more in schemas. The default value here is always "public"

**#8 SSL**

The connection from the WebPQ<sub>Visualizer</sub> to the database server is generally encrypted (ticked).

**#9 Self Signed certificates**

The certificates supplied with the databases are "self signed" by default. However, these can be exchanged for the company's own certificates.

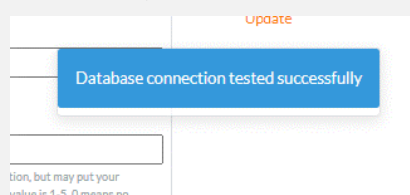
**#10 Precomputation  
Concurrency**

Sets the number of simultaneous precalculation processes - more means faster precalculation, but can put a heavy load on your database and server.

Pre-calculation is used to speed up the display of time series. A good value is 1-5, 0 means no precalculation. Pre-calculation increases the hard disk consumption but reduces the time needed to display time series.

**#11 Test connection**

Checks whether a connection to the database can be established with the entered data (e.g. whether ports are open and all entered data are correct for a connection).



**12 Update**

Back up the settings and restart the services and processes if changes are made!

For a connection to a WinPQ system installed with its default settings, the following settings should be used.



### 5.3.3.1 Settings for installation up to WinPQ v6.1\*

Parameter	Value
#1 Type / Type	MySQL / MariaDB
#2 Host	localhost (if WebPQ is installed on the same PC as WinPQ "default configuration")
#3 DataBase Name	PQID
#4 Port	3306
#5 Username	PQID
#6 Password	PQID (if not changed during or after installation!)

### 5.3.3.2 Settings for installation up to WinPQ v6.2\*

Parameter	Value
#1 Type / Type	PostgreSQL
#2 Host	localhost (if WebPQ is installed on the same PC as WinPQ - "default configuration")
#3 DataBase Name	PQID
#4 Port	5432
#5 Username	PQID
#6 Password	PQID (if not changed during or after installation!)
#7 Database Schema	public

#### NOTE!

In any case, we recommend that you change "standard passwords" and use corresponding secure passwords according to your company guidelines! You will find instructions on how to change passwords in the WinPQ operating instructions.

### 5.3.3.3 Other / Other

In this section of the software, the path in which the settings made in points 1,2,3,4 & 5 are saved is specified #1 (settings.json). If, for example, you want to set up a new server or are planning a move, this file can be used to transfer the settings from the administrative area of PC A to PC B! Exceptions to this are the passwords for the database connection and the certificates!

#### Other

Settings File

1

C:\ProgramData\aeberle\webpq\settings.json

Log Folder

2

C:\ProgramData\aeberle\webpq\logs

Data Export Folder

3

C:\ProgramData\aeberle\webpq\export



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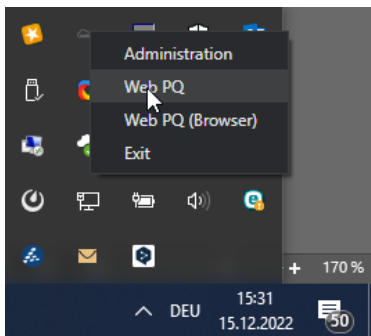
The application continuously "logs" its processes on the host and also stores information about errors on the server. For example, incorrect login attempts are stored in these log files. The log files can be found in the log folder under #2.

If users have set exports in the application in the background, these exports are saved in the specified path under #3.

All path specifications can be changed individually in the interface by clicking directly on the path and selecting a different path!

## 5.4 Initialisation of the WebPQVisualizer

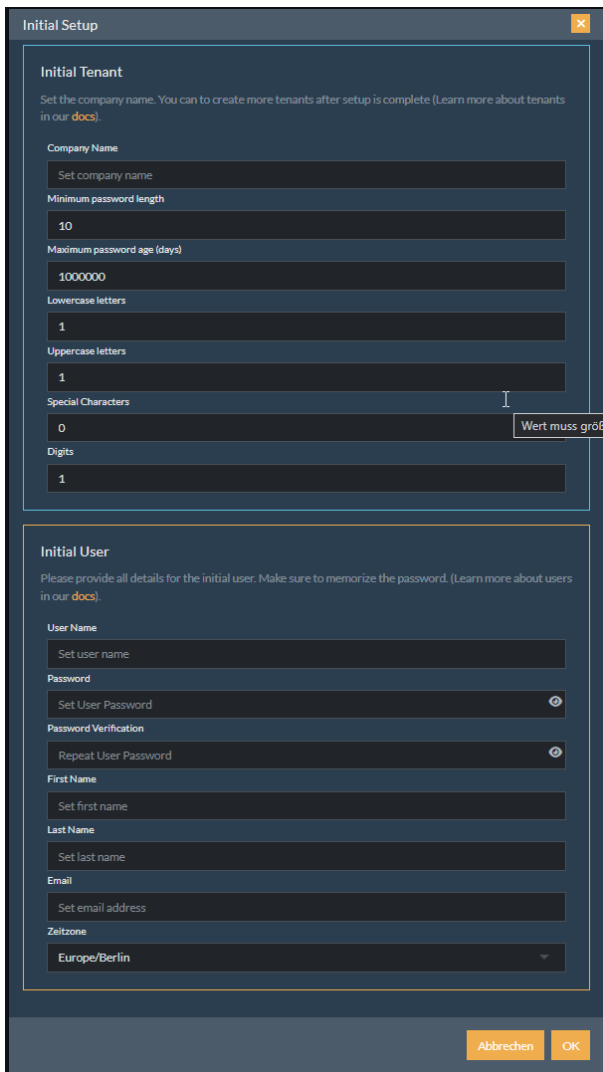
The WebPQ<sub>visualizer</sub> must be initialised at the beginning with an administrator at the application level and certain basic settings such as global password guidelines. The initial initialisation must always be carried out when a new database connection to an existing WinPQ database is created at the administrative level! Normally, the initialisation dialogue appears automatically as described.



However, the front end of the WebPQ<sub>visualizer</sub> application on the HOST can always be called up via the toolbar using the right mouse button. To do this, right-click on the "WebPQ" ICON on the host and call up "WebPQ" in the selection that appears.



The basic settings are divided into two sections:



**Initial Setup**

**Initial Tenant**  
Set the company name. You can create more tenants after setup is complete. (Learn more about tenants in our [docs](#)).

Company Name  
Set company name

Minimum password length  
10

Maximum password age (days)  
1000000

Lowercase letters  
1

Uppercase letters  
1

Special Characters  
0 (Wert muss größer sein)

Digits  
1

**Initial User**  
Please provide all details for the initial user. Make sure to memorize the password. (Learn more about users in our [docs](#)).

User Name  
Set user name

Password  
Set User Password

Password Verification  
Repeat User Password

First Name  
Set first name

Last Name  
Set last name

Email  
Set email address

Zeitzone  
Europe/Berlin

Abbrechen OK

Create an initial company (client\*) with a company name and the password policies that should apply to this company.

The user password policies are divided into the following areas and should correspond to your company-wide password policies!

- Minimum password length
- Password expiry time
- Number of lower case letters
- Number of capital letters
- Number of special characters
- Number of digits

Create the administrator in the WebPQ<sup>Visualizer</sup> interface by entering the *user name* and a *password* - which must comply with the above-mentioned password guidelines.

The initial user must also be given a *first* and *last name* and an *email address*.

The setting of the *time zone* is important because the display of the data in the interface always changes over UTC + specification of the time zone in the user.

If all settings are correct, close the window with **OK**.

After closing the window with OK, the software will automatically map all devices from the WinPQ database into the WebPQ<sup>Visualizer</sup> interfaces and assign them to the user group "User"!

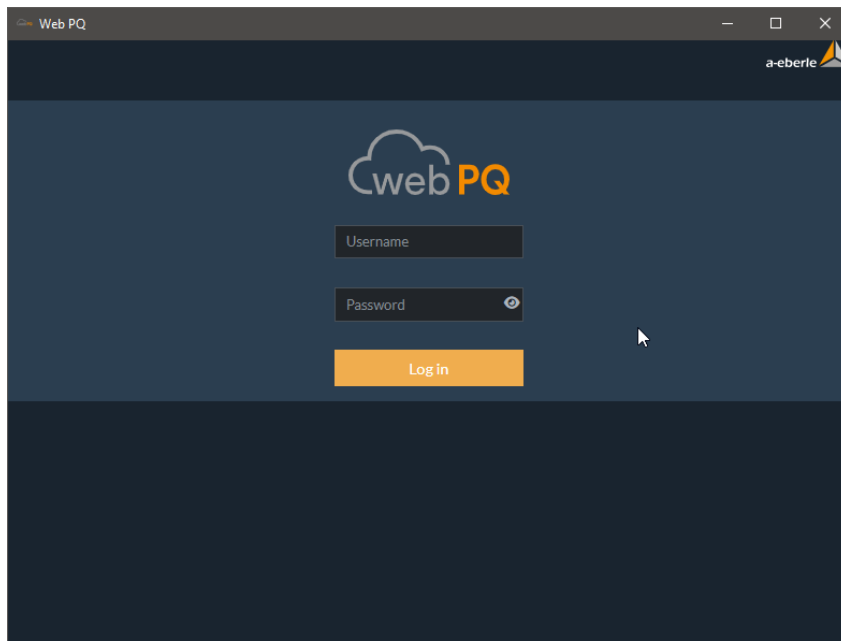
This process may take a few minutes and then the normal login dialogue appears.

### NOTE!

The administrative password entered must be kept safe and must not be lost! Recovery without data loss is not possible!

\*Tenants are used to isolate resources (users, devices) from each other through administrative rights and data storage. Each resource in WebPQ™ is held by its own client. A client typically represents a real company or a department/project in a company. Clients are organised in a tree structure so that a client can have sub-clients and the sub-clients in turn can have their own sub-clients. All administrative tasks can be performed by the administrators of a client and by the administrators of all parent clients in the tree structure. Devices and users of sub-clients are visible and accessible to the owning client in addition to the client's own devices.





Login dialogue after initialisation

## 5.5 Licence

After completing the initial initialisation, the administrator must log in to the software for the first time. When the administrator logs in for the first time, he or she is taken directly to the licence page where a valid licence must be entered.

The licensing of the WebPQ<sup>Visualizer</sup> software is done via a file that is delivered with the software via the portal <https://software.a-eberle.de>. The file has the order number and customer number in the file name and the JSON extension. The file has the order number and the customer number in the file name and as extension JSON and must be kept carefully!



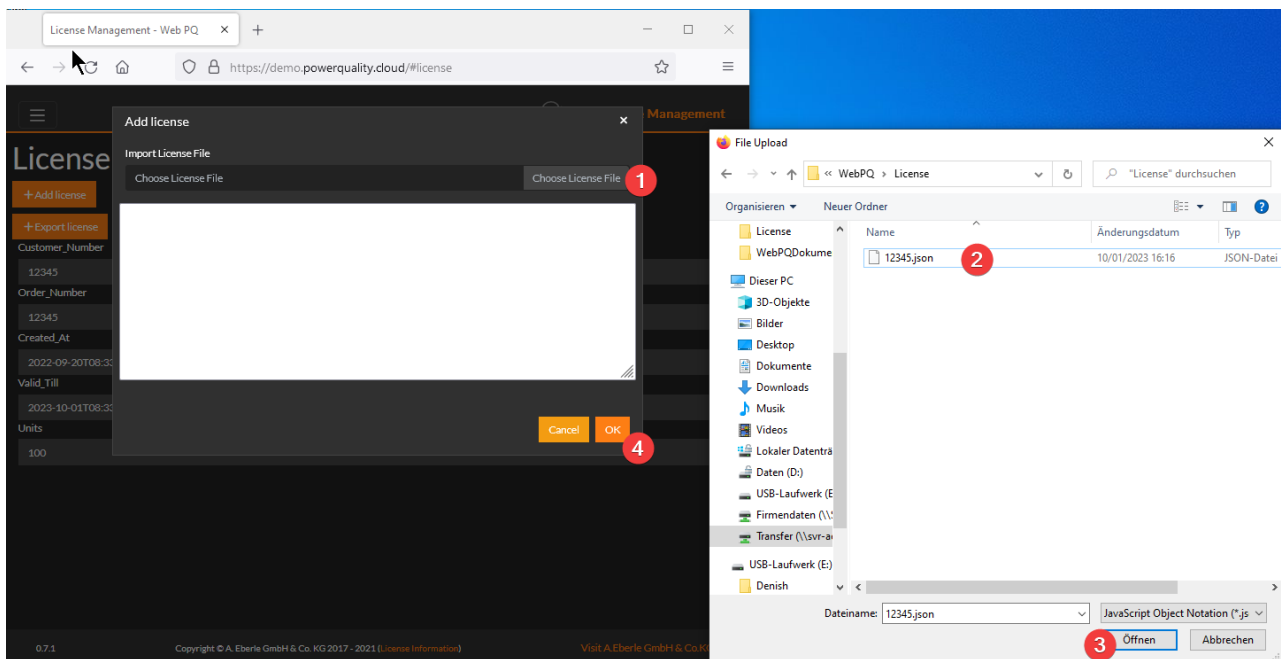
Example: Order 335641 - supplied with licence file with file name "3356841.json".

In the licence management area, the file must be loaded into the system via *+Add licence*.

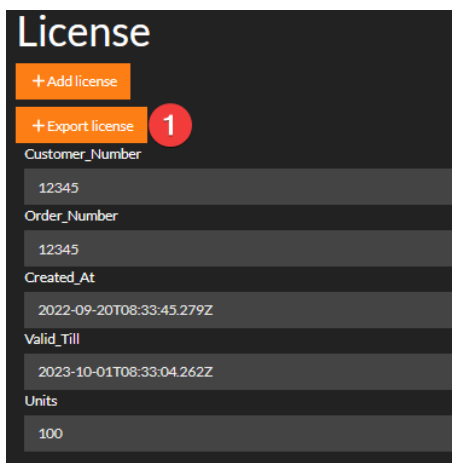
To do this, select the file via *Browse #1*, select the licence file *#2* and transfer it to the software via *Open #3*.

Now the content of the file is output and can be transferred to the software with *#4 "OK"*.





The software can be updated for 12 months from the date of purchase within the validity period. A new maintenance contract with article number 900.9265.20 is then required for the next 12 months. For this purpose, the licence file currently stored in the software must be transmitted to A.Eberle GmbH. To export the licence from the database in order to transmit it to A.Eberle GmbH, the button +Export licence. #1 button in the licence administration to save the licence locally.





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## 6. Operation & handling

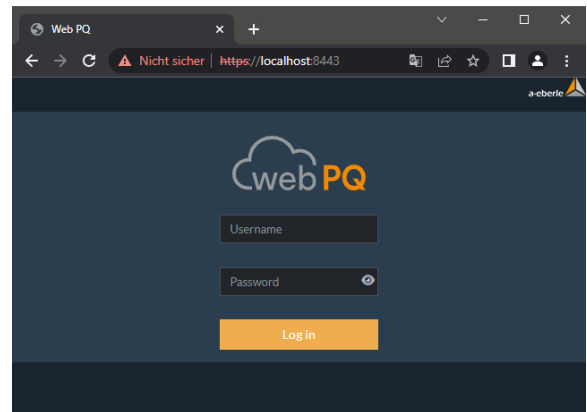
The WebPQ<sub>Visualizer</sub> software is opened on the workstations via the web browser using a link, which can be different in each installation depending on the IT environment used. In order to work with the software, it must be ensured that the port defined in 5.3.2 is accessible from the workstation PC to the server with the WebPQ<sub>Visualizer</sub> software installed.

### Examples:

#### ▶ Local installation

If the server on which the WebPQ<sub>Visualizer</sub> was installed is also the workstation PC, the software can be opened in the browser via the following link.

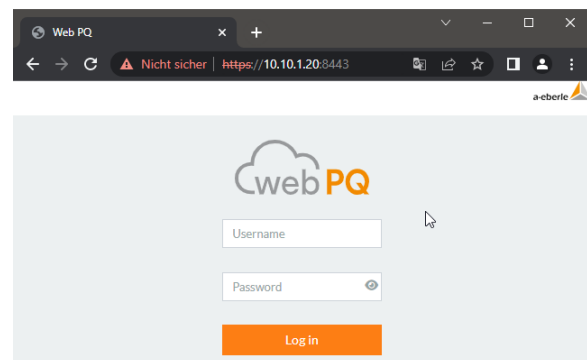
<https://localhost:8443/>



#### ▶ Client server architecture

If the WebPQ<sub>Visualizer</sub> software is installed on a different PC (server) than the workstation PC (client), the address of the server must be entered (in this example, the server has the IP address 10.10.1.20).

<https://10.10.1.20:8443/>



### Login to the system:

Enter your user name and password to log in directly to the system!




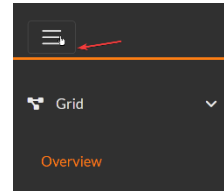
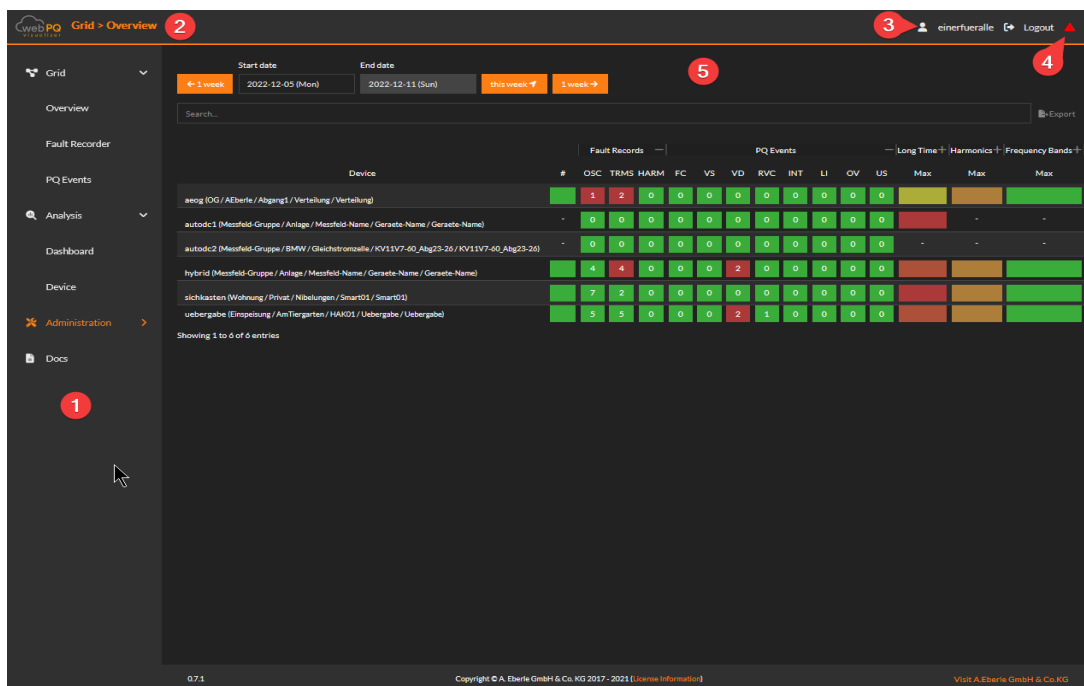
In the event of incorrect login attempts, the user is blocked for five minutes after five incorrect attempts. The login attempts are also logged in the system.



## 6.1 Window layout of the WebPQVisualizer software

The WebPQVisualizer application is divided into three sections.

The navigation bar #1 can be found in the left-hand area, which may be moved to the upper area at smaller resolutions. This navigation can then be opened by clicking on the three dashes. In the upper area you will find the navigation path #2, the account settings #3 (chapter 6.7), the system status #4  (Chapter 6.6) can be selected. In the workspace #5 of the software, the selected pages from the navigation are opened by clicking on the links.

The screenshot shows the WebPQVisualizer interface. The left sidebar contains a navigation menu with items: Grid, Overview, Fault Recorder, PQ Events, Analysis, Dashboard, Device, Administration, and Docs. The main area displays a table of PQ Events with columns for Device, #, OSC, TRMS, HARM, FC, VS, VD, RVC, INT, LI, OV, US, Max, and Frequency Bands. The table lists several devices and their corresponding PQ event data. The interface also includes a search bar, date filters (Start date, End date), and a 'this week' button. The bottom of the interface shows the version number 0.7.1, copyright information, and a link to visit A.Eberle GmbH & Co. KG.

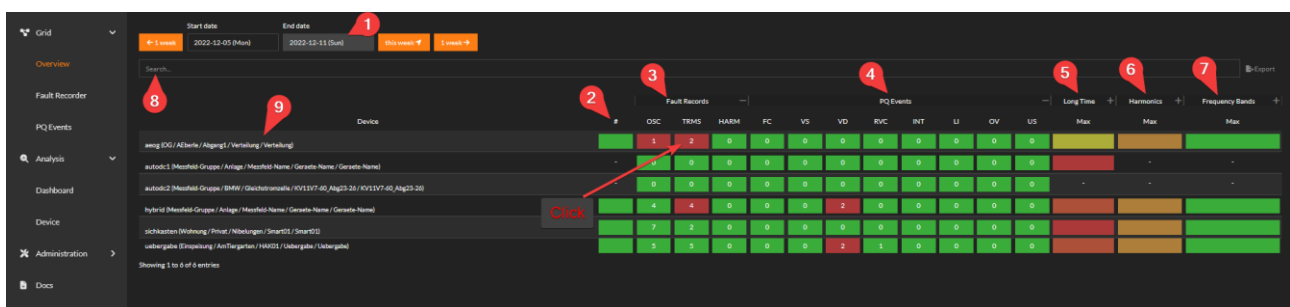


## 6.2 Visualisation pages

### 6.2.1 Grid > Overview

The software's landing page "Grid >Overview" gives the user the possibility to get a quick overview of all devices connected to the WinPQ software in a selected time range #1 over a calendar week. The landing page is updated automatically in order to always be able to identify the latest faults.

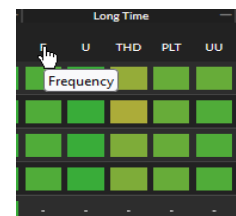
The units are sorted by default according to the number of faults in time range #3. These are displayed in either red (unacknowledged) and green (acknowledged). Clicking on an *OSC* or *TRMS* Records #2, opens the Analysis Cockpit (chapter 6.4.1) and the colour of the button with the number of records changes from red to green.



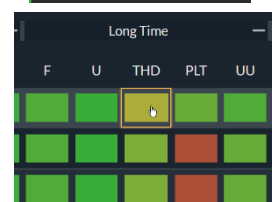
In the *PQ - Events* #4 section, the number of power quality events based on the set power quality standard stored in the measuring device - e.g. EN50160 or IEC61000-2-4 - are listed. By clicking on the - / + the individual areas can be folded in or out. In the collapsed state, the maximum values for the sub grouped measured values are always used for the display.

In the *long-term data* section #5, the statistical data are calculated according to the standard stored in the measuring device. These are frequency [F], voltages [U], THD (total of all harmonics), flicker [PLT] and also voltage unbalance [UU].

If you stop on the abbreviations with the mouse, the abbreviations are also explained via a tooltip.



By clicking on the designation, e.g. PLT, the display sorts from the worst measuring point to the best measuring point and vice versa. This function helps to easily identify the most conspicuous measuring points in the respective measured value. Clicking on the respective measured values - e.g. "THD" - opens the Analysis Cockpit to switch from the very abstract display of the measured values to a temporal display.



In the *Harmonics* #6 section, all harmonics from the H2 (100Hz) to the 50th harmonic (2500Hz) and also the super harmonic #7 are listed in relation to the respective limit value.

The colour scale in the statistical readings changes from green (far from the limit) to yellowish orange to red (readings above the limit).

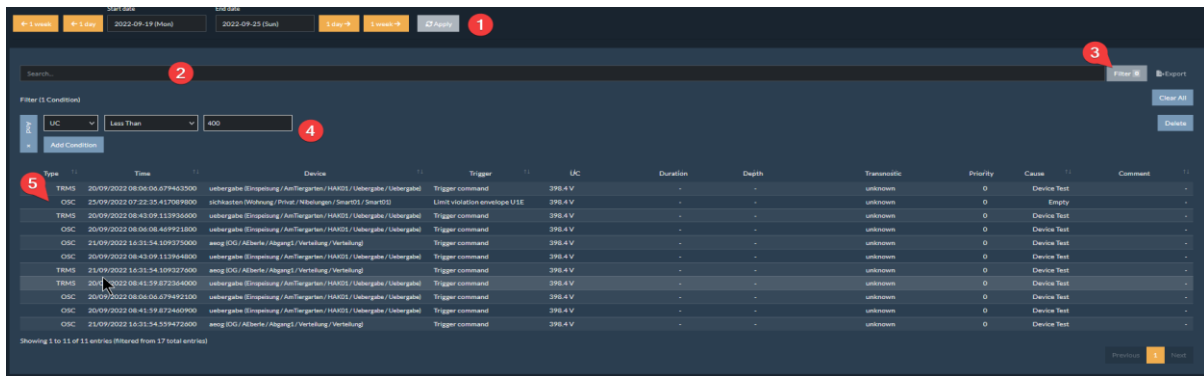
To easily find the desired measuring points, enter a name of a measuring device in the search bar area #8. The display is then filtered interactively.

If one clicks directly on a device name #9, one changes in the application from Network >> Overview to the page Analysis >> Device (see chapter 6.4.3)



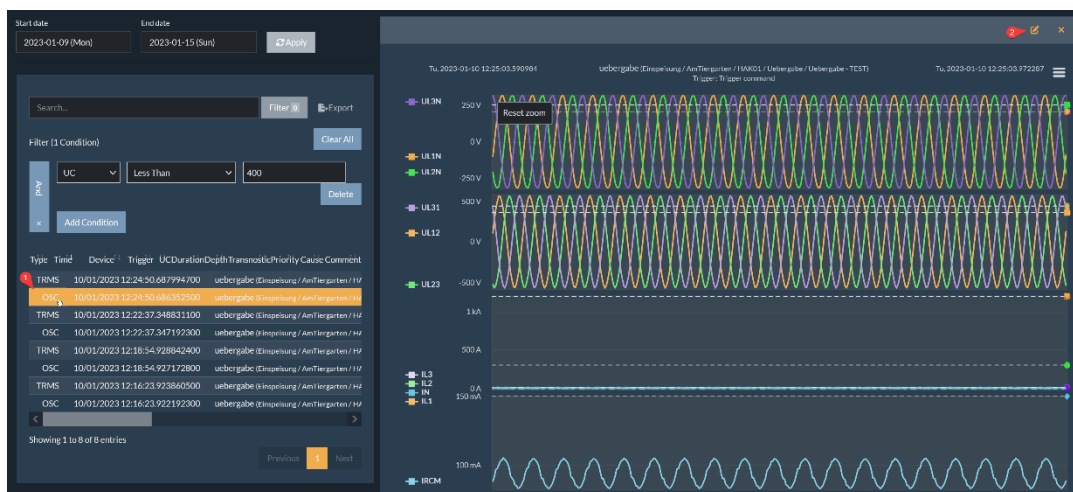
## 6.2.2 Grids > Fault Recorder

In the section "*Grids > Fault recorder*", all disturbances in the freely selectable *time range* #1 are displayed in a list. The display has a *search function* #2, a *filter function* #3 and also the possibility to open the fault records in a Quick View via the link OSC and TRMS #5.



In section #4, the user has the option to set filters. In the example under #4, a filter is set to the nominal voltage (UC), which is less than 400V. Thus, all faults in this nominal range are displayed.

Click on OSC #1 to open the Quick View window from the right. If you want to set markers, describe the fault or use further analysis options, you can open the *Analysis Cockpit* by clicking on #2.



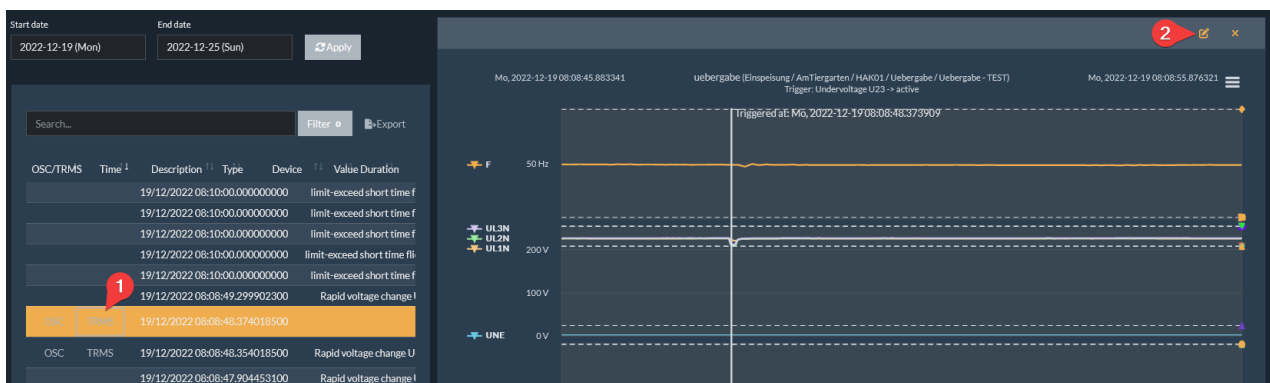


## 6.2.3 Grid > PQ -Events

In the "Grid > PQ Events" area, all power quality events in the freely selectable *time range* #1 are displayed in a list. The display has a *search function* #2, an *advanced search function* #3, an export function #4 as well as the possibility to open existing fault records in the view via the link OSC and TRMS #5 in a Quick View.

OSC/TRMS	Time	Description	Type	Device	Value	Duration
	19/12/2022 08:10:00.000000000	limit-exceed short time flicker U3;10min mean value	PST_L3	uebergabe (Einspeisung / AmTergarten / HAK01 / Uebergabe / Uebergabe - TEST)	1.035	-
	19/12/2022 08:10:00.000000000	limit-exceed short time flicker U2;10min mean value	PST_L2	uebergabe (Einspeisung / AmTergarten / HAK01 / Uebergabe / Uebergabe - TEST)	1.23	-
	19/12/2022 08:10:00.000000000	limit-exceed short time flicker U1;10min mean value	PST_L1	aeog (OG / AEberle / Abgang1 / Vertellung / Vertellung)	1.111	-
	19/12/2022 08:10:00.000000000	limit-exceed short time flicker U23;10min mean value	PST_L23	uebergabe (Einspeisung / AmTergarten / HAK01 / Uebergabe / Uebergabe - TEST)	1.426	-
	19/12/2022 08:10:00.000000000	limit-exceed short time flicker U1;10min mean value	PST_L1	sichkasten (Wohnung / Privat / Nibelungen / Smart01 / Smart01)	1.126	-
	19/12/2022 08:08:49.299902300	Rapid voltage change U13;U_max [V], Delta USS [V]	RVC_L1	aeog (OG / AEberle / Abgang1 / Vertellung / Vertellung)	-15.21 V	50 ms
OSC TRMS	19/12/2022 08:08:48.374018500	Voltage dip U23;	DIP_L23	uebergabe (Einspeisung / AmTergarten / HAK01 / Uebergabe / Uebergabe - TEST)	354.5 V	70 ms
OSC TRMS	19/12/2022 08:08:48.354018500	Rapid voltage change U23;U_max [V], Delta USS [V]	RVC_L23	uebergabe (Einspeisung / AmTergarten / HAK01 / Uebergabe / Uebergabe - TEST)	-34.81 V	90 ms
	19/12/2022 08:08:47.904453100	Rapid voltage change U1;U_max [V], Delta USS [V]	RVC_L1	sichkasten (Wohnung / Privat / Nibelungen / Smart01 / Smart01)	-15.61 V	60 ms

Click on OSC #1 to open the Quick View window from the right. If you want to set markers, describe the fault or use further analysis options, you can open the *Analysis Cockpit* by clicking on #2.



## 6.3 Operation in the analysis

### ► Zoom In / Zoom Out

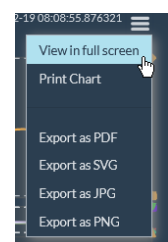
In general, you can zoom in using the left mouse button or, in the case of a touch display, using the typical two-finger zoom movement.

Zoom In: Hold the left mouse button and drag to the left or right.

The zoomed area can be saved via the function "Keep zoom" #1. "Reset zoom" resets the zoom to the original value.

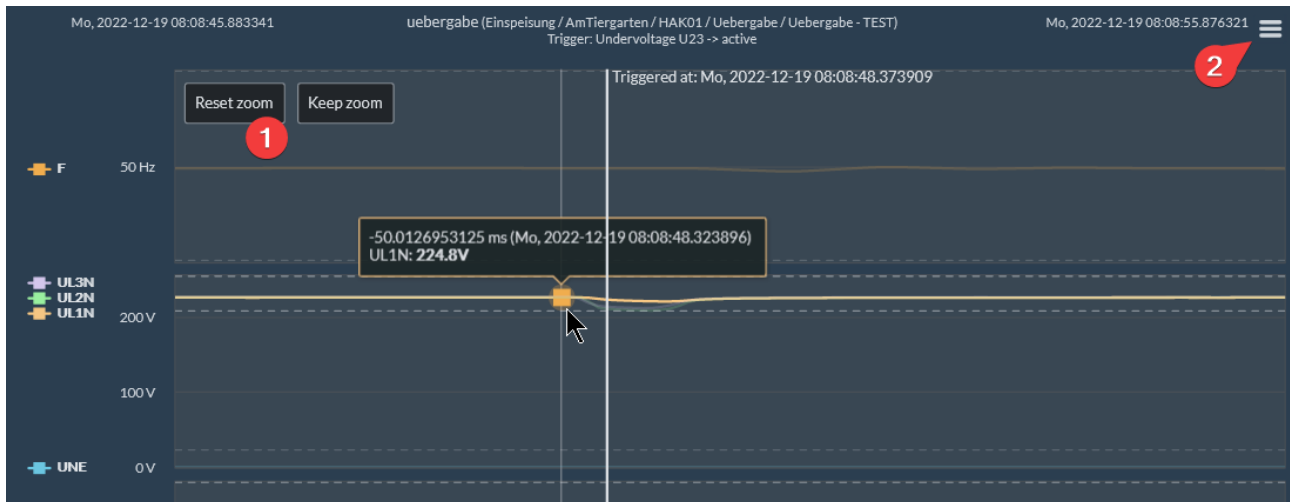
### ► Submenu in analysis #2

- View in Full Screen: In order to achieve the largest possible display of the measurement data, especially in the area of tablets or mobile phones, it is possible to scale the graphic to the complete size of the monitor.
- Print Chart: With this it is possible to print the chart.
- Download PDF document: The graphic can be saved as a PDF file on the host.



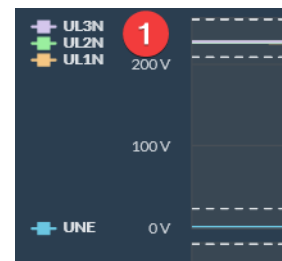


- Export as SVG / JPG / PNG: Exports the graphic as an image file in the selected format.



### ▶ Showing & hiding measured values on the Y-axis

By clicking on a measured variable #1, you can select and deselect the measured variables. Deselected measured values are always displayed at the bottom. In general, the measured variables are always displayed in the order of the respective height of the measured value on the Y-axis.






## 6.4 Analysis

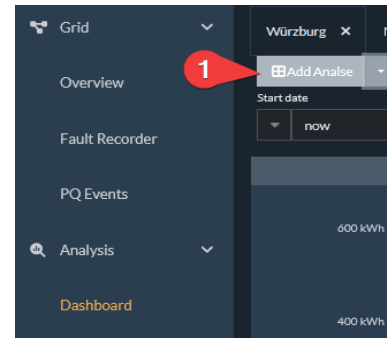
### 6.4.1 Analysis > Cockpit

The Analysis Cockpit is the central analysis tool in the WebPQ visualizer software.

The cockpit can be opened either via the Analysis > Dashboard "Add Analysis" #1 area, by clicking on a measured value in the statistics in the "Grid

> Overview" area or also via the shortcut  in the existing analyses.

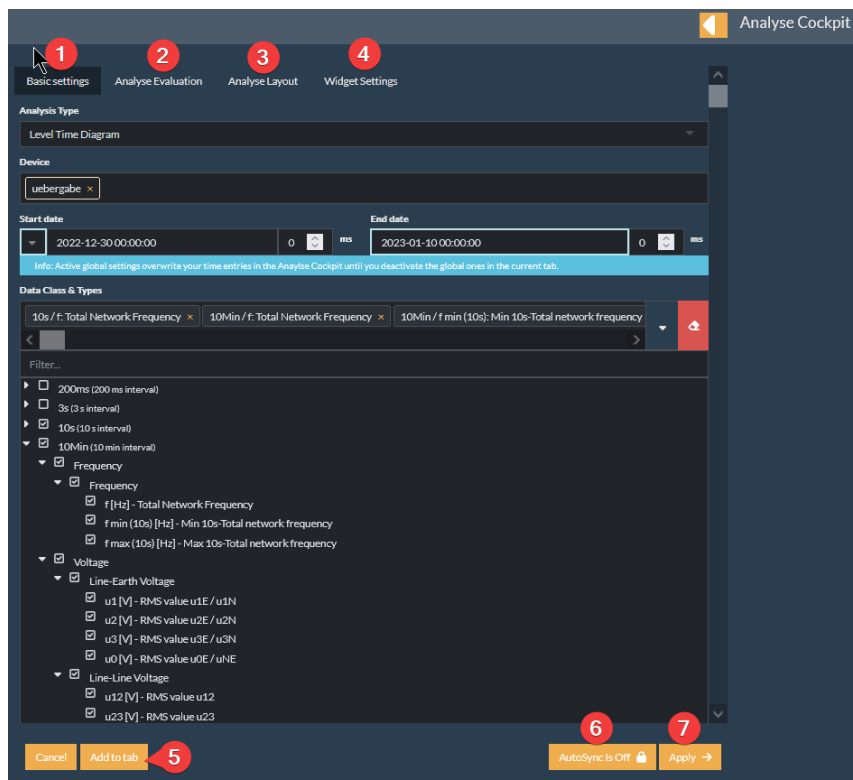
The Analysis Cockpit is divided into two sections. Settings can be made in the left frame, and the measurement data are visualised in the right frame.



In the Analysis Cockpit, the analysis type, the device selection, the evaluation period and the measured variables can be defined in the *basic settings* #1. In addition, helpful functions such as setting and displaying markers or displaying limit values and extreme values are available in the *evaluation* area #2 for detailed analysis. In area #3 "Analysis Layout", it is possible to set the grouping of the measured variables, the scaling and the colour of the measured values.

In the widget settings #4 the size and the heading of the analysis widget can be set. The user using the button "Add to tab" can add the widget to the analysis dashboard.

The button *Apply* #7 allows the user to apply the settings made, such as the selected measurement variables,



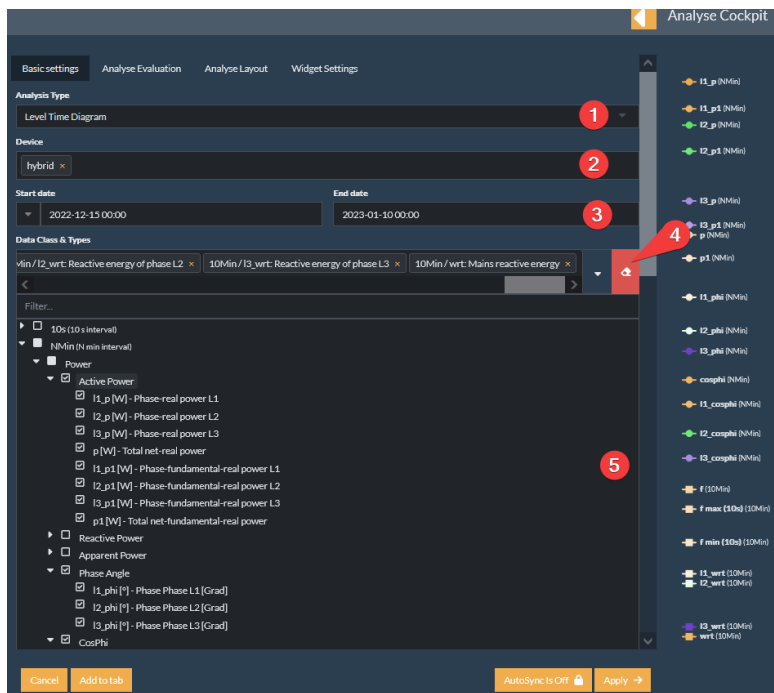
to the frame on the right-hand side. If the user wants to see the settings made on the left-hand side immediately in the frame on the right-hand side, he or she can switch on *auto-synchronisation* #6.

*Cancel* #8 closes the Analysis Cockpit without saving it in the application (database) itself.

**Note:** Generally, the settings of the Analysis Cockpit are stored in the browser's cache. This enables the analysis data to be displayed historically when a new analysis is opened, even if the analysis dashboard is not saved.



### 6.4.1.1 Basic settings



#### ► Analysis type:

Under **#1** you can choose between different analyses. By default, the level-time diagram is selected. However, you can also select other types such as histograms or the ITIC as the evaluation graphic for the power quality event analysis.

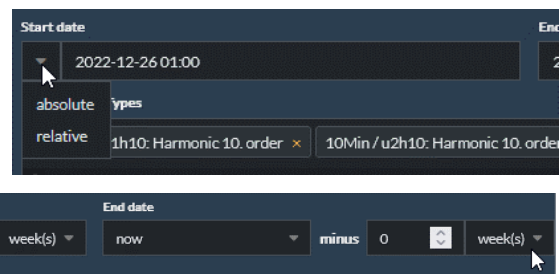
In the area **Device #2**, you have the option of selecting the devices that are to be evaluated in the analysis. This can be done either by entering the ID directly or by clicking with the left mouse button in the empty area. A selection list of all units in the database is then displayed.

With the help of time setting **#3**, you can freely select the evaluation period. This can be done either by entering the times directly and using the

The date/time can be confirmed by pressing Enter or by clicking on the date/time to open a selection dialogue. By clicking on the arrow, you have the option of switching between the absolute display and a relative time display. With the help of the relative time display, the user has the possibility of always keeping the analyses "up to date". You can always set the last week as the start date and the current time minus 0 weeks as the end date. This ensures that the user always has the latest data in the analysis and that it is constantly updated automatically.

The user can select the measured values that were recorded by the selected device in the selected period and transferred to the database via the measured value tree **#5**. The selection can be completely deleted via **#4**.

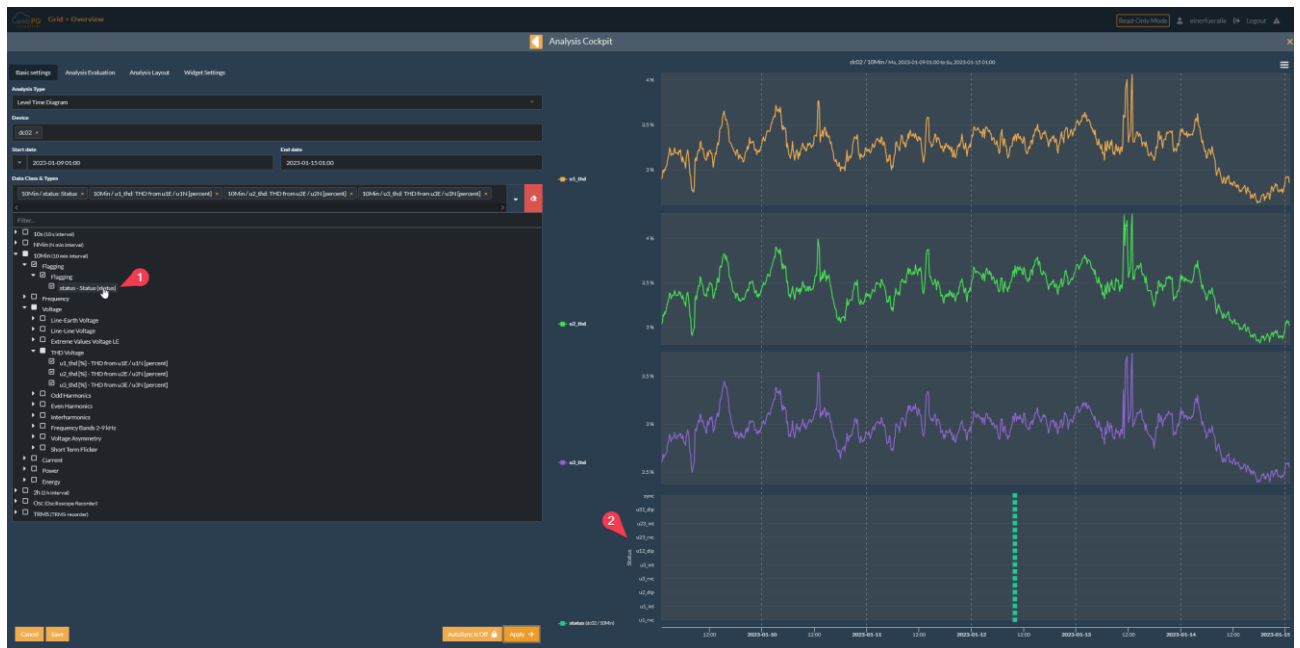
In the various analyses listed below, there are analysis-specific parameters to be observed, which are listed below





► **Level time diagram:**

The Level Time Graph displays the selected readings in a line graph as a range of data points.



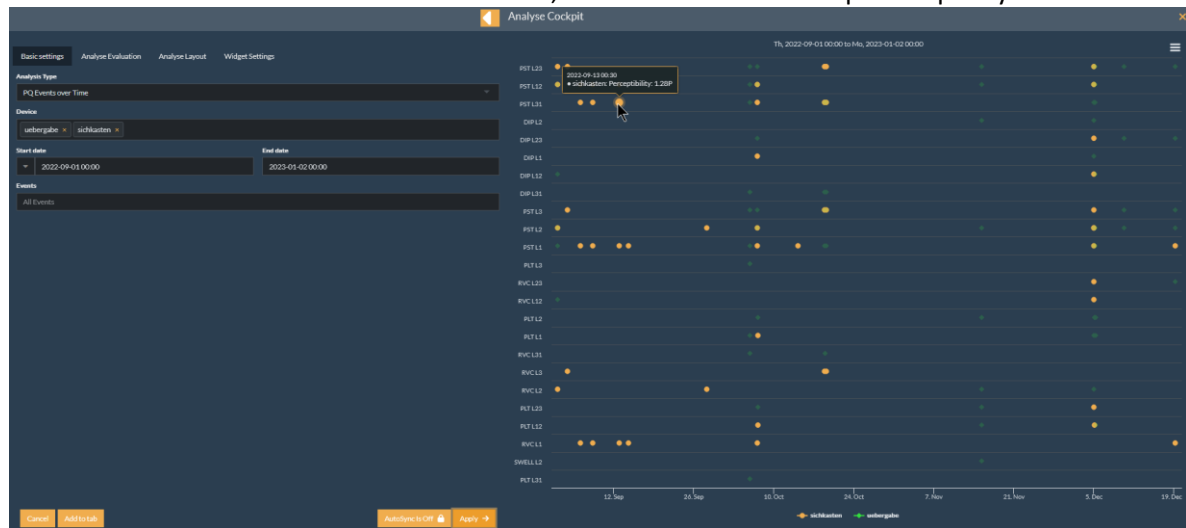
Flagging according to IEC61000-4-30 Class A can also be displayed in the data series via measurement tree **#1** The flagging is displayed in the analysis as a normal measured value and is also shown inside the graphs **#2**

In the level time diagram, up to two markers can be set by clicking the left mouse button. To do this, the user only has to click on the interesting measuring point. To delete markers, simply click on the marker to be deleted again. These marker values are directly displayed in the analysis evaluation (see also chapter 6.4.1.2)



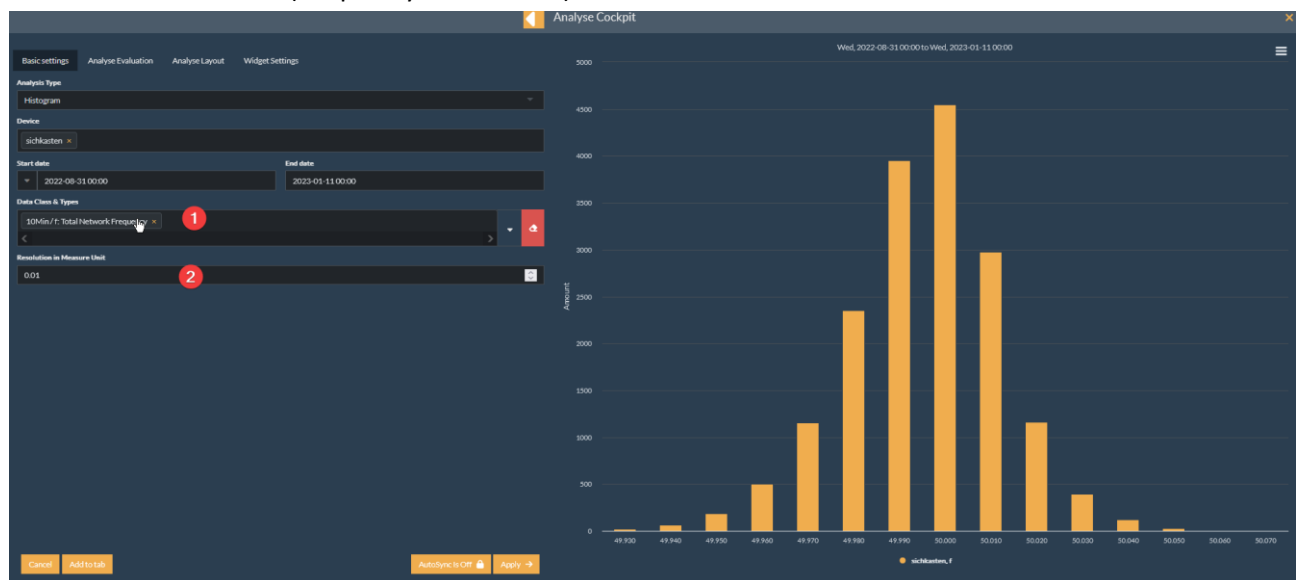
### ► PQ Events over time

The recorded and selected PQ events are displayed over time. As a user, you can move the mouse over the events to obtain further information, such as the level of the power quality event.



### ► Histogram

With the help of a histogram, you can view the statistical distribution of a measured variable. In this example, frequency #1 was selected and statistically distributed with #2 in the selected time period at a distance of 10mHz (frequency distribution).

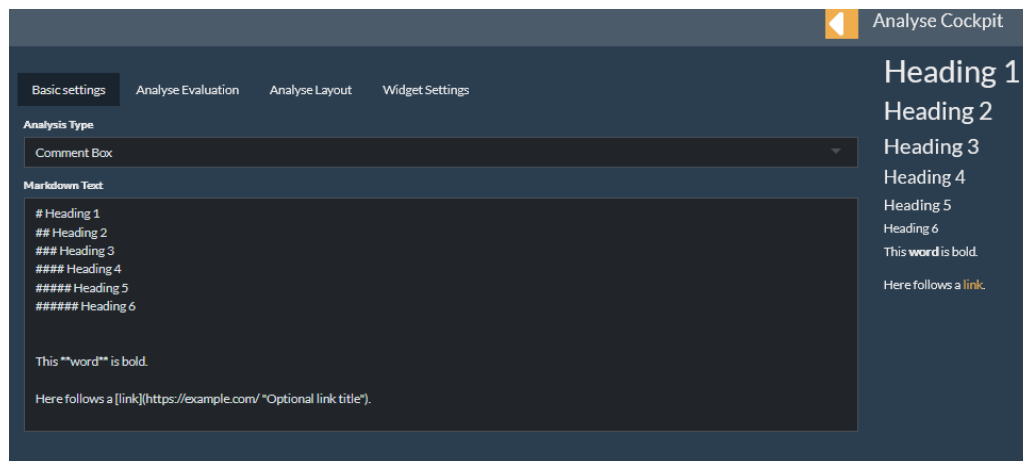




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### ► Comment box

The comment box is used to comment on your own analysis that you have compiled in the analysis dashboard area. The comment box functions according to the simplified markup language "Markdown" in order to allow simple formatting. Markdown is a simple text syntax for creating formatted text. The syntax can be looked up in this Markdown cheatsheet <https://github.com/adam-p/markdown-here/wiki/Markdown-Cheatsheet>.



The example from the screenshot would be entered in "Markdown" language as follows:

```
# Heading 1
## Heading 2
### Heading 3
#### Heading 4
##### Heading 5
##### Heading 6

This **word** is bold.

Here follows a [link](https://example.com/ "Optional link title").
```

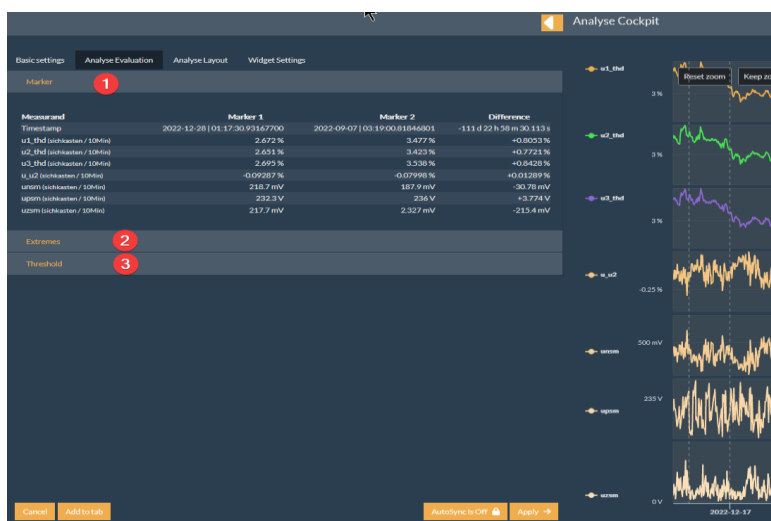
### ► ITIC

The ITIC (CBEMA) curve describes an AC input voltage that can typically be tolerated by most information technology equipment (ITE). Any PQ events that lie within the enveloping curve should not cause any interruption or damage to the function of a connected device. The ITIC is displayed logarithmically in X-axis direction and in Y-axis representation as a percentage of the set nominal voltage of the respective device. This makes it possible to evaluate medium-voltage and low-voltage devices in parallel in one graph. All PQ events that the user can select via the selection field are displayed on the interactive analysis ITIC. If a PowerQuality event such as a voltage reduction has also triggered a fault record, it is possible to open and evaluate it interactively by clicking on the PQ event.





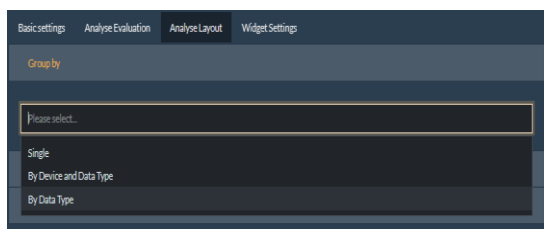
### 6.4.1.2 Analysis Evaluation



Under "Analysis Evaluation" you have the possibility to view the measured values of the "Markers" #1. Markers can be set in the different analysis types. Under "Extrema" #2 you can view all extreme values such as min / max and average values of the selected measurement series.

With the help of the function "Limit values" #3 you have the possibility to display the limit values that have been stored in the measuring device. For the fault records, these are the trigger conditions.

### 6.4.1.3 Analysis Layout




In the "Analysis Layout", the *grouping procedures* as well as the *scaling* and *colours* of the measured values can be defined.

Using the "Group by" function, it is possible to display measured values in individual representation (each measured value is displayed in an individual level time diagram), by device and data type (unit) as well as across several devices only by data type in the various level time diagrams.



Datentypen	Standard	Globale	Benutzer	Aktive
1 L1 12 123				
L2 23				
L3 31				
N R B I				
V VA				
A MW				
% MVar				
(keine Einheit) MVA				
H z ?				
" VAr				
W var				

Under the "Colour" menu, an individual colour spectrum can be defined for the measured values. The spectrum of the colours can be defined according to the conductor affiliation (L1,L2,L3 & N or L12, L23,L31 & N).

L1 is assigned the colour orange. Thus, all measured quantities that have L1 as a conductor reference are displayed in orange so that the conductor reference can always be recognised directly via the colour. To separate the measured quantities such as voltage and current or power from each other, the colour is tinted in 10% steps. The colour selection per leader can be set globally or individually by each user. The colour shown under "Active" corresponds to the active setting for the session in which the user is currently located. To reactivate the global setting, click on the button  in "Global". This will then change the *global* setting to the *active* setting.

[illegible]

37

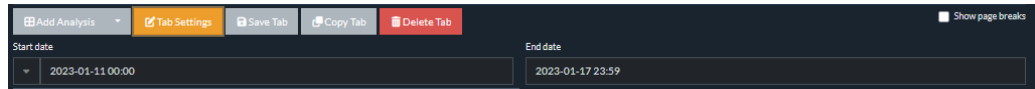




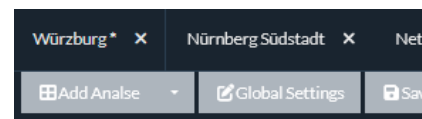


## 6.4.2 Analysis > Dashboard

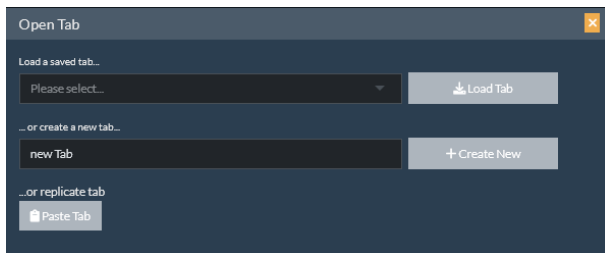
The Analysis Dashboard, which can be found in the navigation bar on the left side under "Analysis >> Dashboard" #1, is used to permanently save analyses in widgets that were created via the Analysis Cockpit. With the help of the function *Add Analysis* #2 it is possible to open the Analysis Cockpit, define an individual analysis and transfer it to the Analysis Dashboard (description in chapter 6.4.1). With the function, "Tab settings" #3 it is possible to change the period on the tab for all analyses saved in the tab. For example, you can never have the power selected in one widget and the maximum currents and voltages as well as the THD in another widget. In order to compare the dependencies of the variables among each other on a weekly basis, the time range for all widgets can be adjusted via the tab Settings. To do this click on "Tab Settings" #4 and change the time range for the tab and all analyses below it.




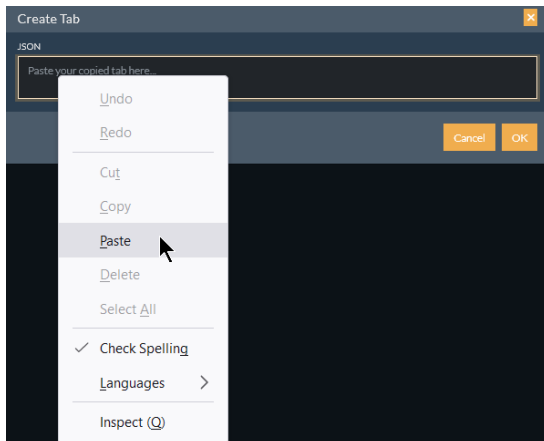
The settings such as window sizes and zoom levels, markers, etc. are saved via the "Save tab" function #4. If you have changed settings, you will be prompted to save or discard the changes when you leave the Analysis Dashboard area. Unsaved tabs are marked with an "\*" so that they can be easily retrieved to complete the saving. Using function #5, tabs can be copied 1:1 and saved under a new name. With #6 the tab is deleted directly. If, on the other hand, a tab is closed via the X next to the tab name, it is not deleted but can be displayed again at any time via the + in the table bar #7 from the tab menu.








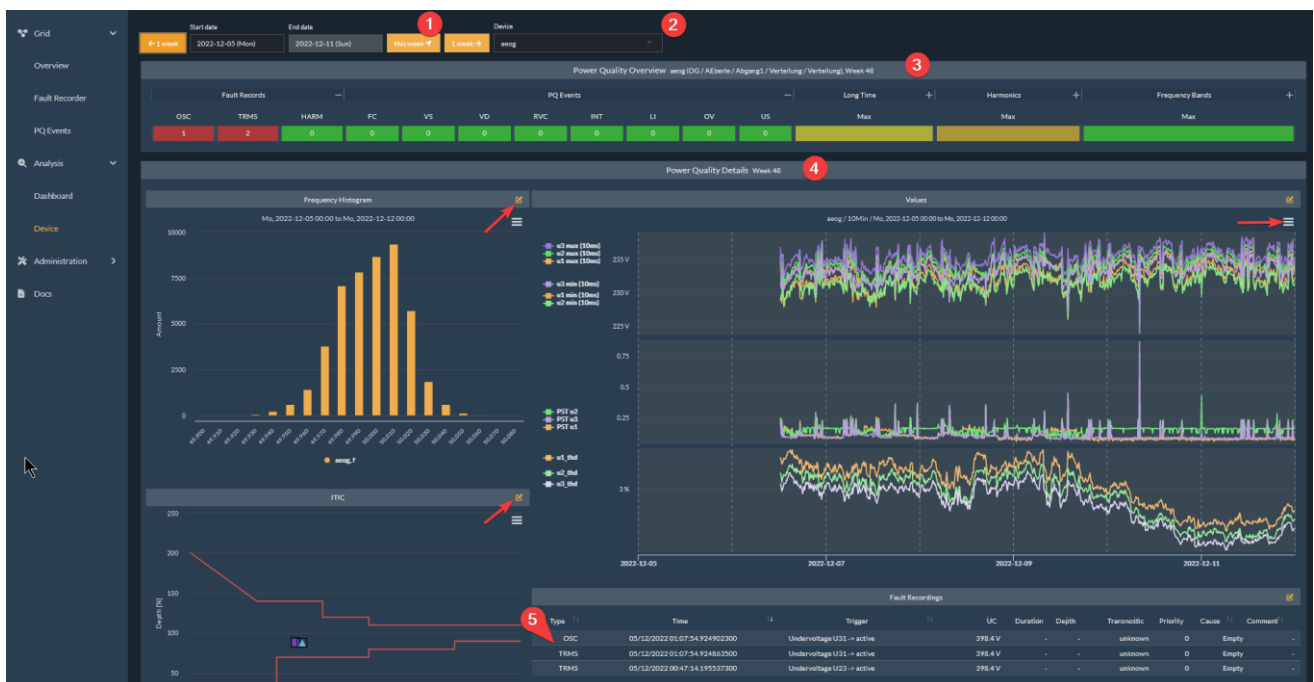
The tab menu is opened via . In the "Load saved tab" area, you can transfer all tabs from the background memory back to the interface. To create a new tab, click on "+ Create new". To save the tab copied using function #5 in a new one, use the function "Add tab" and paste the content into the empty field using CTRL+V:





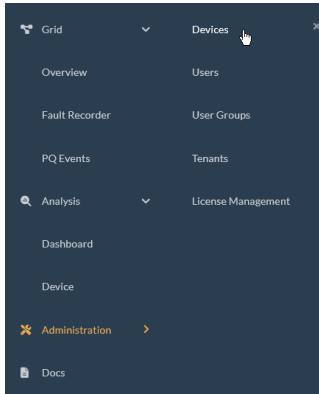
### 6.4.3 Analysis > Device

In order to get an overview of the most important power quality measurement parameters, PQ events and fault records of a measurement point as quickly and effectively as possible, you can access the status of a measurement point by clicking on the device name or via the "Analysis device". Under **#1** you can jump forward or backward by week. In area **#2** you can select the measurement point. In area **#3** you will find the meta information about the measurement point, as well as the selected calendar week and the evaluation according to EN50160 of all relevant measurement values in the colour spectrum (green = OK, red = above the limit value). In section **#4** the frequency is displayed as a histogram, the voltage extreme values, the flicker and the THD as a function of the voltage level as a level time diagram. Via  you can jump from all diagrams back to the Analysis Cockpit and carry out the analysis according to your needs, also independent of fixed calendar weeks, or fade in further measured values. In area **#5** all disturbance Records that occurred in the selected calendar week are listed in tabular form. The ITIC on the left-hand side of the screen lists all PQ events in the time range.





## 6.5 Administration in the frontend



The administration of the devices, user groups, licence management and clients can be found on the left side in the menu tree. Depending on the rights you have as a user, settings are displayed or hidden here.

In general, three user groups are defined by default:

root\_default\_users,  
root\_default\_operators:  
root\_default\_administrators

### 6.5.1 Access concept

Access is regulated according to users, devices, clients, device groups and authorisations. Users, devices and device groups are "owned" by a client. In addition, each user can have permissions for specific devices. You can only interact with objects that belong to your client and for which you have the necessary permissions.

#### 6.5.1.1 Authorisations

Each data access to users, devices or clients requires an authorisation. An example: In order to read the measured values of a device, the user and the device must be granted the authorisation "Read measured values".

An authorisation can be valid for all objects within a client or only for a single device. To distinguish between these two types of permissions, we call them client permissions and device permissions respectively.

##### ▶ Authorisations for clients

- Change device metadata:  
Allows you to change the description or location of a device. Corresponds to granting the Change Metadata device authorisation for each device in your client.
- Change user metadata:  
Change a user's password or contact information.
- Create and delete devices
- Create and delete subclients
- Create and delete users
- Migrate users and devices:  
Changes the owner client of a user or device to another sub-client of yours.



- 
- Change permissions on any client machine:  
This permission is different from any other permission a user may have. When granted, the user can grant all device permissions of any device in their client to any user in their client, including themselves. It is as if every device authorisation has at least the status "may grant" (see Authorisation status). This authorisation is useful for users who must have full administrative access to every device in their client without exception, as newly added devices can also be managed by them.

▶ **Device authorisations**

- Read measured values  
The most important authorisation on WebPQVisualiser It is required to perform an analysis of unit measurement data.
- Change metadata:  
Same as the *"Change Device Metadata"* client authorisation. Allows changing the description or location of a specific device.
- Publish measured values:  
This permission has no effect yet. It will be used in the future to allow services to publish measurement data.
- Delete measurements:  
This permission has no effect yet. It will be used in the future to enable the deletion of previous measurement data points.

▶ **States of permission**

Sometimes it is not enough just to give permission. If you want to grant a permission to your colleague, you must also be authorised to grant this permission to someone else. In this case, the permission must be in the status "can grant" or "fully granted".

The four states that a user's authorisation can be in are as follows

- Denied  
Permission is not granted to the user and he/she is not allowed to grant it to any other user (including himself/herself).
- Granted  
Permission is granted to the user. However, he may not grant it to other users.
- Can grant  
The authorisation is not granted to the user, but he can change the status of the authorisation for all users of his client, including himself! Set this authorisation status for users who only want to manage their colleagues but do not want to have the authorisation themselves because this would bloat their application with irrelevant data.
- Fully granted  
The combination of Granted and May Grant.  
The authorisation is granted to the user and he is also allowed to change the authorisation status of all users of his client.



► **Device authorisations are granted in a three-tier model:**

- A user can have the permission "*Change permissions on any client machine*" in their client permission set. This permission allows any other permission of any device in the client and its sub-clients to be edited.
- A user can be listed in a user group and this group grants permissions for specific devices. User groups are managed by a user who has the aforementioned permission to change permissions for each client device. There are two default user groups per client:
- A user can have direct permissions for devices. This is the most specific, but also the most cumbersome way of granting permissions, as it must be granted individually for each combination of user and device. The preferable model is to grant permissions via user groups.

All permissions have a positive effect. This means that if a user is granted an authorisation on a device by a user group or directly, this authorisation cannot be revoked by another user group. If you do not want to grant all users of a client reading rights for all devices of the client via the standard user group, you must deny all permissions for this standard group and then set up your own permission groups. Since these custom groups will not be populated with newly created devices or users, it may be more convenient in this case to create a sub-client of your client to host the specific users and devices.

## 6.5.2 Devices

Via the device management, measuring devices can be viewed, added, administered in the interface and deleted.

As the WebPQ Visualizer is a visualisation solution based on existing measurement data, all units newly added via the WinPQ are automatically added to the visualisation every 60 seconds. These units are then added to the user group `root_default_users`, `root_default_operators` & `root_default_administrators` and root tenant.

Via the button "+ Device" #1 you have the possibility to create further devices.



This function requires the authorisation "*Create and delete devices*".

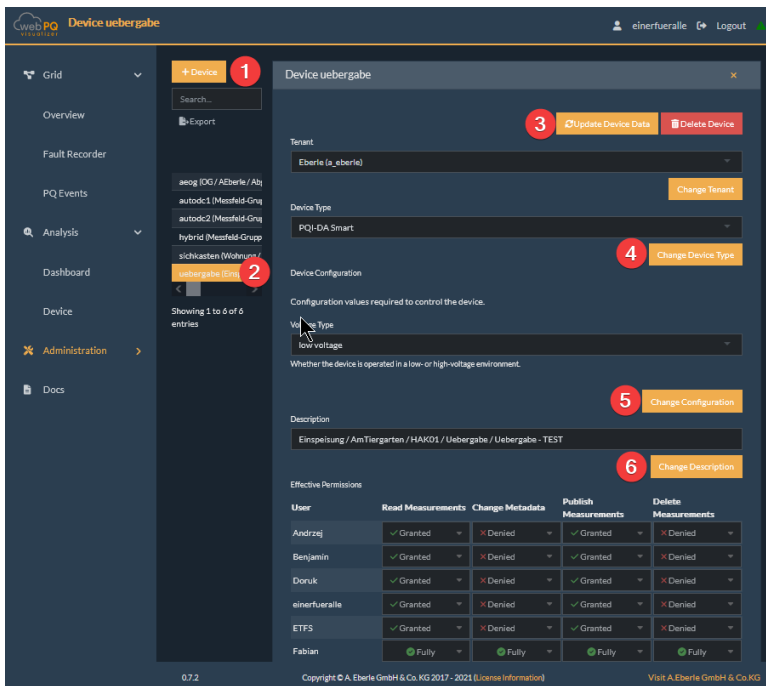
This is generally only necessary to a limited extent in WebPQ Visualizer V1 if no special constellation with different clients is selected. In this case, please contact us directly!

If settings such as the description or the voltage level of the measuring point are to be changed, you can access the submenu of the unit by clicking on the measuring unit #2 to be set.



This function requires the client rights "*Change device metadata*" & "*Create and delete devices*".





In this menu it is possible to transfer the current settings of the measuring device from the WinPQ database to the WebPQ Visualiser using the function "Update device data" #3. Delete device" removes the device from the WebPQ Visualiser.

The measuring device type can be changed via Device type (#4). The setting of the voltage level (#5) is important for the reporting and display of measurement data. Thus, generally in the low voltage, conductor / earth parameters are used for reporting, for the medium & high voltage the conductor / conductor parameters and PQ events.

The description / long names are generally taken 1:1 from the unit. However, if these are not correct or implausible, the user can add individual descriptions at this point and overwrite the setting from the device. To do this, simply enter a free text describing the measuring point and save it with "Change description" #6. The settings made at this point have no influence on the unit parameterisation itself!



In general, all settings made in this menu should automatically be transferred correctly from the WinPQ database. However, the settings are necessary in individual cases if no direct access to the WinPQ software solution is possible and individual settings are to be made for the measuring points!

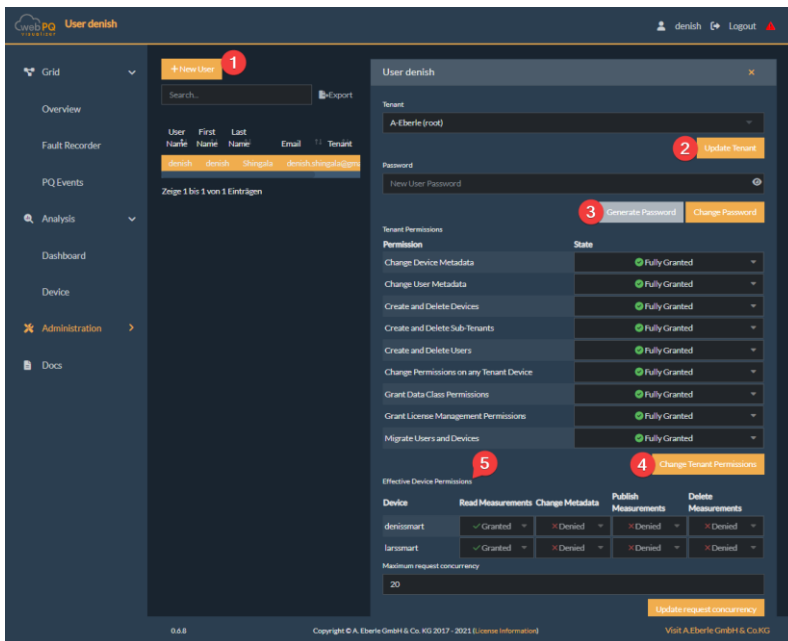
### 6.5.3 User

Under Administration >> Users, individual users can be added.



This function requires the client rights "Change user metadata" & "Create and delete users".





### 6.5.3.1 Create a new user



This function requires the authorisation "Create user".

- ➔ Go to Users. Press "New User" (#1) to create a new user. A dialogue appears asking for details.
- ➔ Enter an alphanumeric user name and assign a password to the user. The user uses the credentials you entered to log in to WebPQVisualizer.  
First name, last name and e-mail must also be entered correctly.
- ➔ Select a client in the client selection. It is also possible to create users for one of your sub-clients.
- ➔ Finally, you can select one or more devices that the user is allowed to see. The user is entered in the "Allowed Users" property for each device you have selected here. This step is optional. The list of a user's devices can be changed subsequently at any time (see Changing a User's Properties).
- ➔ Press "OK" to complete the process and create the user.

### 6.5.3.2 Changing the properties of a user



This function requires the authorisation "Change user metadata".

- ➔ Go to Users. Select the user by clicking on their row in the user table. Edit the fields of your choice and press Update.



### 6.5.3.3 Deleting a user (only for administrators)



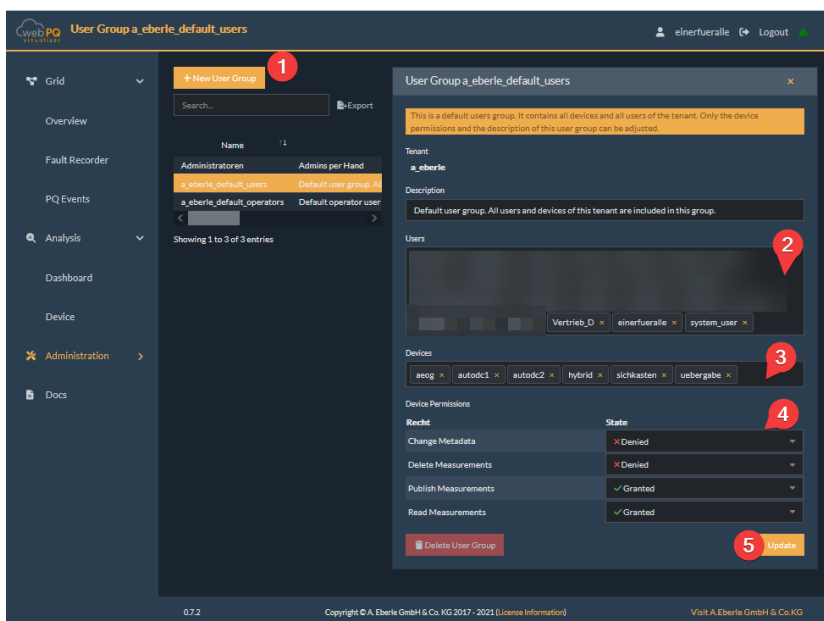
For this function, you need the authorisation to create and delete users.

- ➔ Go to Users. Select the user by clicking on its row in the user table.
- ➔ Click on "Delete user" in the lower left corner.

## 6.5.4 User groups

User groups are used for easy administration of many devices. In general, the WebPQ<sub>Visualizer</sub> software<sub>r</sub> has three user groups:

- root\_default\_users
- root\_default\_operators
- root\_default\_administrators



### 6.5.4.1 Setting up a user group



To use this function, you need authorisation to change permissions on any client device in your client.

- ➔ Go to User Group.
- ➔ Click on "New user group". (#1)
- ➔ Enter a name, add users and devices. (#2 and #3)

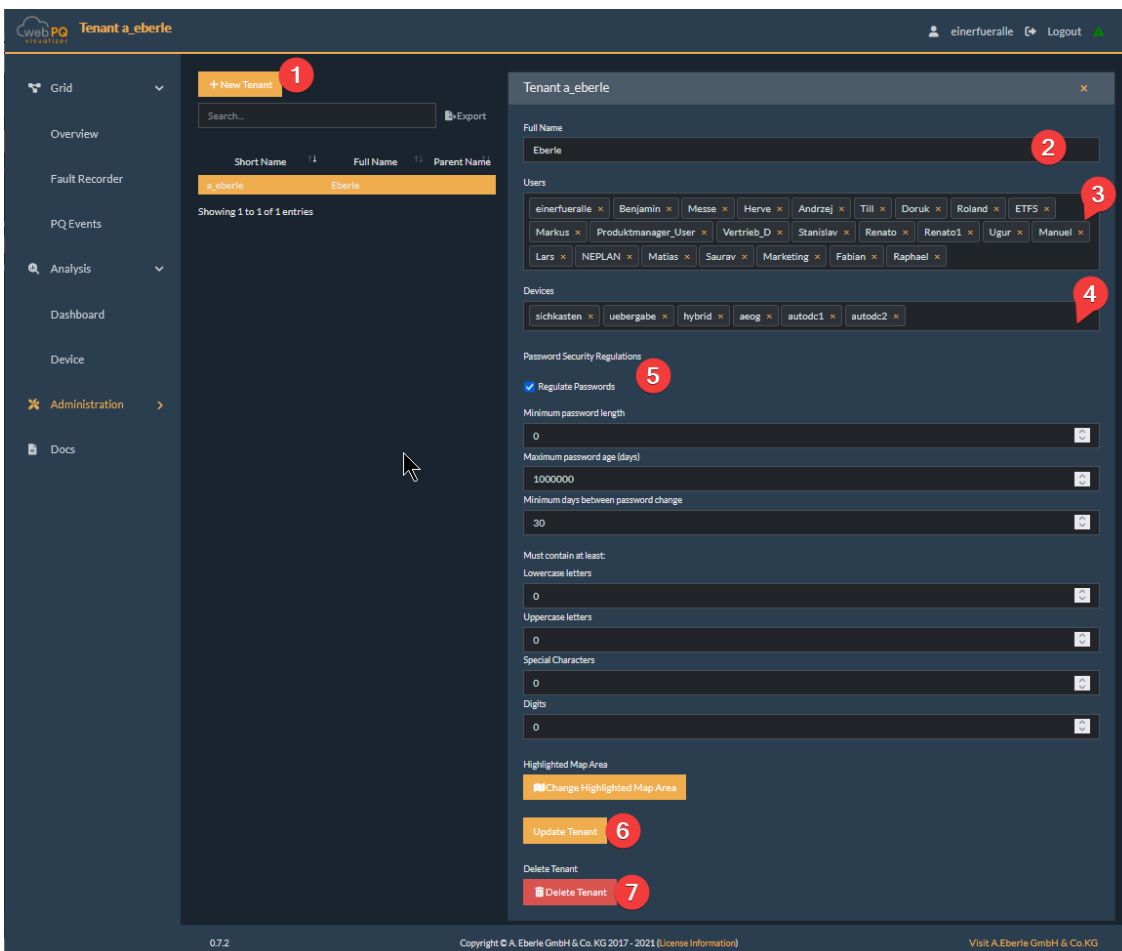


- ➡ Select a client, usually your own client.
- ➡ Adjust the permissions for the devices of the user group in the detail view of the user group and click on "Update". (#4)
- ➡ Press "Update". (#5)

### 6.5.5 Clients / Tenants

Clients are used to isolate resources (users, devices) from each other through administrative rights and data storage. Each resource in WebPQ<sub>Visualizer</sub> is held by its own client. A client typically represents a real company or a department/project in a company. Clients are organised in a tree structure so that a client can have sub-clients and the sub-clients in turn can have their own sub-clients.

All administrative tasks can be done by the administrators of a client and by the administrators of all parent clients in the tree structure. Devices and users of sub-clients are visible and accessible to the owning client in addition to the client's own devices.



The screenshot shows the 'Tenant a\_eberle' configuration page in the WebPQ Visualizer. The interface is dark-themed with a sidebar on the left containing navigation links: Grid, Overview, Fault Recorder, PQ Events, Analysis, Dashboard, Device, Administration (highlighted), and Docs. The main content area is titled 'Tenant a\_eberle' and contains several sections:

- + New Tenant** (1): A button to create a new tenant.
- Search...**: A search bar for tenants.
- Table**: A table with columns 'Short Name', 'Full Name', and 'Parent Name'. It shows one entry: 'a\_eberle' (Eberle).
- Full Name** (2): A text field containing 'Eberle'.
- Users** (3): A list of users with names in a grid: einertueralle, Benjamin, Messe, Herve, Andrzej, Till, Doruk, Roland, ETFS, Markus, Produktmanager\_User, Vertrieb\_D, Stanislav, Renato, Renato1, Ugur, Manuel, Lars, NEPLAN, Matias, Saurav, Marketing, Fabian, Raphael.
- Devices** (4): A list of devices in a grid: sichkasten, uebergabe, hybrid, aeog, autodc1, autodc2.
- Password Security Regulations** (5): A section with a checked 'Regulate Passwords' checkbox and several input fields:
  - Minimum password length: 0
  - Maximum password age (days): 1000000
  - Minimum days between password change: 30
  - Must contain at least:
    - Lowercase letters: 0
    - Uppercase letters: 0
    - Special Characters: 0
    - Digits: 0
- Highlighted Map Area**: A section with a 'Change Highlighted Map Area' button.
- Update Tenant** (6): A button to update the tenant.
- Delete Tenant** (7): A button to delete the tenant.

The footer of the interface shows the version '0.7.2', copyright information 'Copyright © A. Eberle GmbH & Co. KG 2017 - 2021', and a link to 'Visit A.Eberle GmbH & Co. KG'.



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#### 6.5.5.1 Create a new client

This function requires the authorisation to create and delete subclients.

- ➔ Go to Clients. Press "New Client" #1 to create a new client. A dialogue appears asking for details.
- ➔ Enter the parent name in alphanumeric form. The client name also serves as the name for the device group that is created for this client.
- ➔ Select your own client as the parent client. Devices and users are optional. These can be changed later (see Changing the properties of a client).
- ➔ Press "OK" to complete the creation of the client.

#### 6.5.5.2 Delete a client

This function requires the authorisation to create and delete subclients.

- ➔ Go to Clients. Select a client. Change the properties.
- ➔ Click on Delete Client at the bottom left (#7) and confirm the operation.

Only clients to which no users and no devices are assigned can be deleted. Follow the description below to clear the list of users and devices of the client to be deleted.

#### 6.5.5.3 Transfer users and/or devices between clients

This function requires the client authorisation Migrate users and devices.

- ➔ Go to clients.
- ➔ Select the receiving client.
- ➔ Add the users/devices of the outgoing client to the incoming client.
- ➔ Press " Update client" (#6).

### 6.5.6 Licence Management

The licensing of the WebPQ<sub>visualizer</sub> software is done via a file which is delivered with the software via the portal <https://software.a-eberle.de>. The file has the order number and customer number in the file name and the JSON extension. The file has the order number and the customer number in the file name and as extension JSON and must be kept carefully!



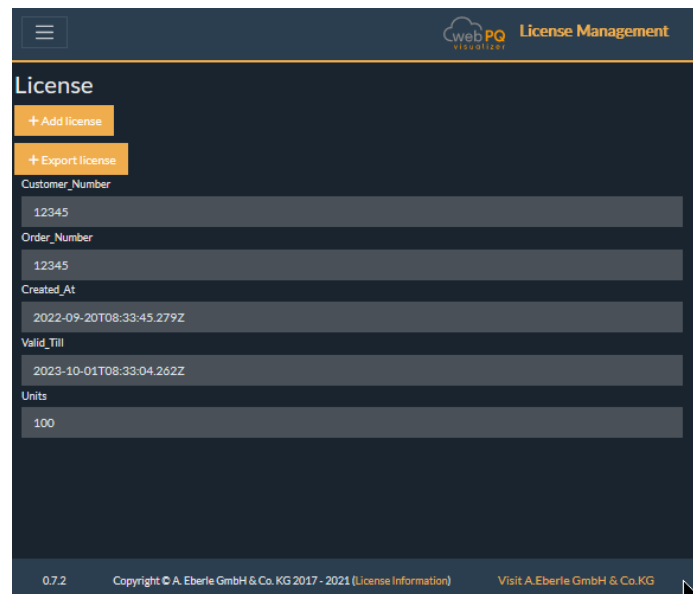


Example: Order 335641 - supplied with licence file with file name "3356841.json".

In the licence management area, the file must be loaded into the system via **+Add li-**  
**cence**.

To do this, select the file via **Browse #1**, select the licence file **#2** and transfer it to the software via **Open #3**.

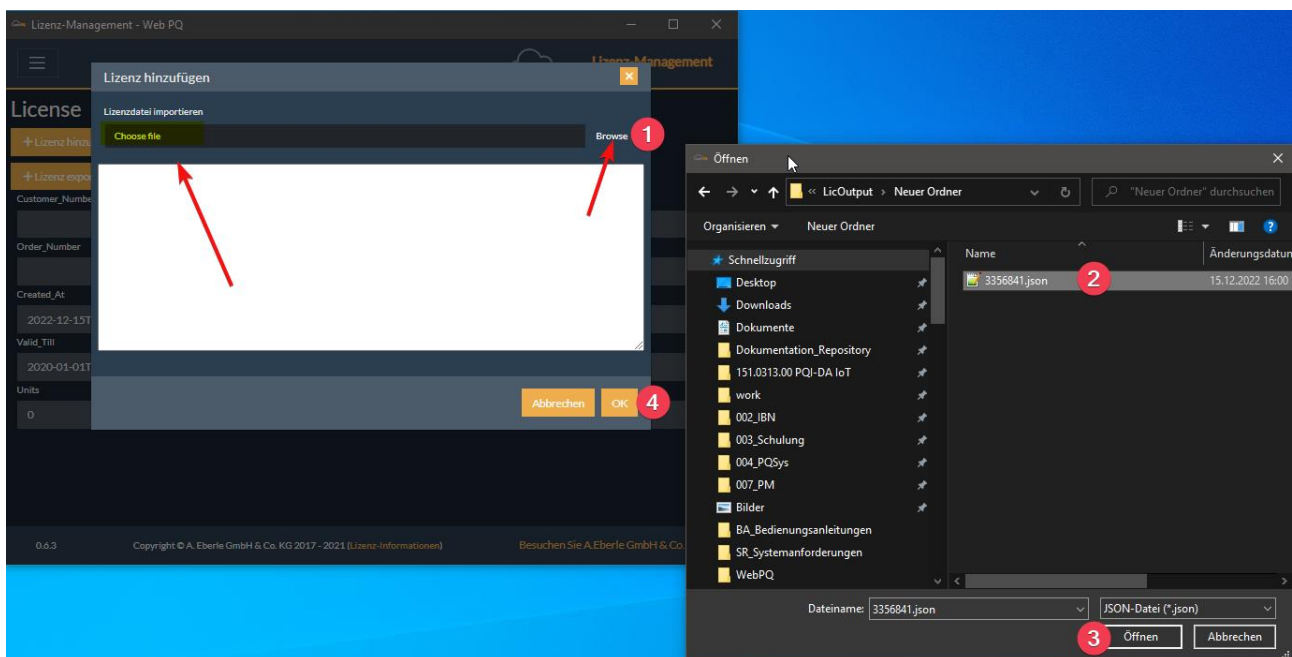
Now the content of the file is output and can be transferred to the software with **#4** "OK".



The screenshot shows the 'License Management' interface. It has a sidebar with 'Add license' and 'Export license' buttons. The main area contains a form with the following fields:

- Customer\_Number: 12345
- Order\_Number: 12345
- Created\_At: 2022-09-20T08:33:45.279Z
- Valid\_Till: 2023-10-01T08:33:04.262Z
- Units: 100

At the bottom, there is a footer with version 0.7.2, copyright information, and a link to visit A.Eberle GmbH & Co. KG.





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The software can be updated for 12 months from the date of purchase within the validity period. A new maintenance contract with article number 900.9265.20 is then required for the next 12 months. For this purpose, the licence file currently stored in the software must be transmitted to A.Eberle GmbH.

To export the licence from the database in order to transmit it to A.Eberle GmbH, the button +Export licence. **#1** button in the licence administration to save the licence locally.s

## License



[+ Add license](#)[+ Export licence](#) **1**

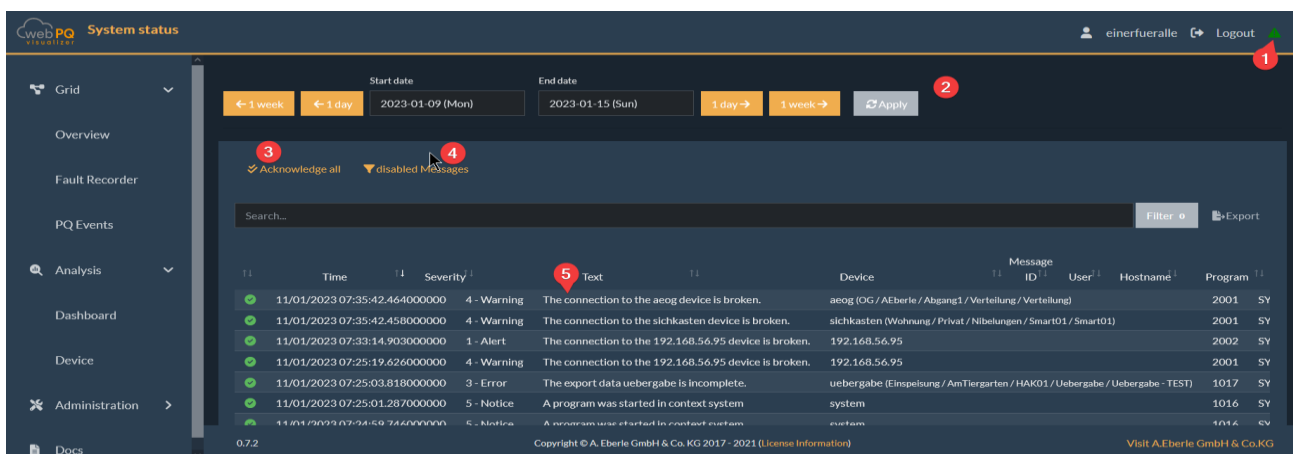
Customer_Number	12345
Order_Number	12345
Created_At	2022-09-20T08:33:45.279Z
Valid_Till	2023-10-01T08:33:04.262Z
Units	100



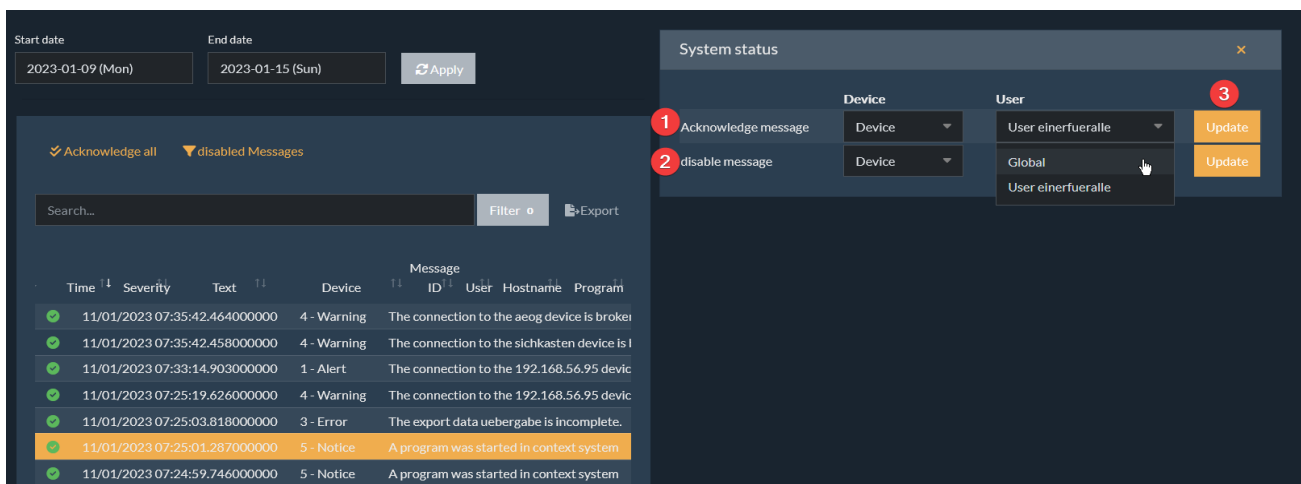
## 6.6 System messages



In order to organise the system with many connections to many measuring points and to operate the system in a stable way, the software has listed all messages centrally via **#1**.

If the exclamation mark is red , new system messages - such as connection interruptions or messages about the battery status of the measuring instruments - have occurred. If, on the other hand, the exclamation mark is green , all messages have been acknowledged (**#3**) or no new critical messages have occurred.



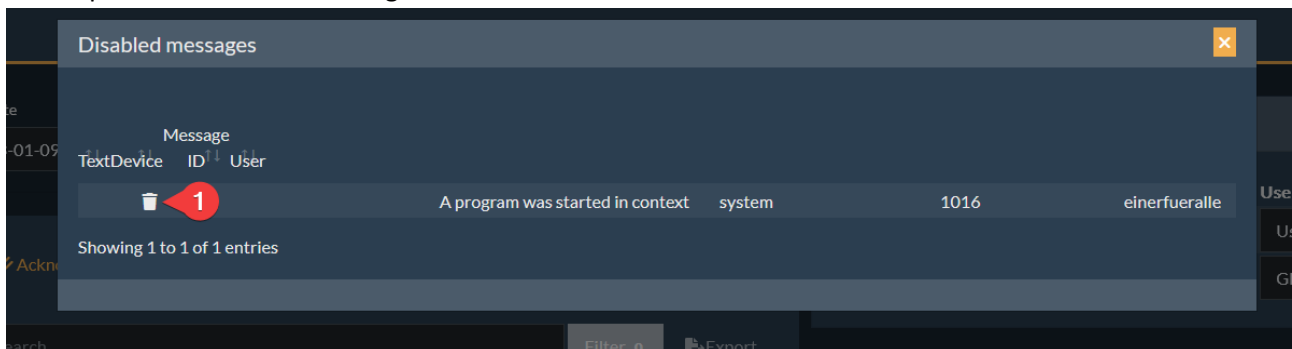
All messages can be acknowledged completely (**#3**) or individually by clicking on the message as shown in the screenshot below (**#1**) per device / global and per user or global. To do this, select the option under Device or User in the drop-down list and confirm this via **#3**.



It is also possible to "deactivate" individual messages. This may be necessary, e.g. when a connection is switched off for revision purposes. To do this, select function **#2** "Disable message". This function can also be set per device or globally for the message type per user or for all users. Via the button "disabled Messages"  the deactivated messages can be viewed and reactivated. To do this, simply click on  in



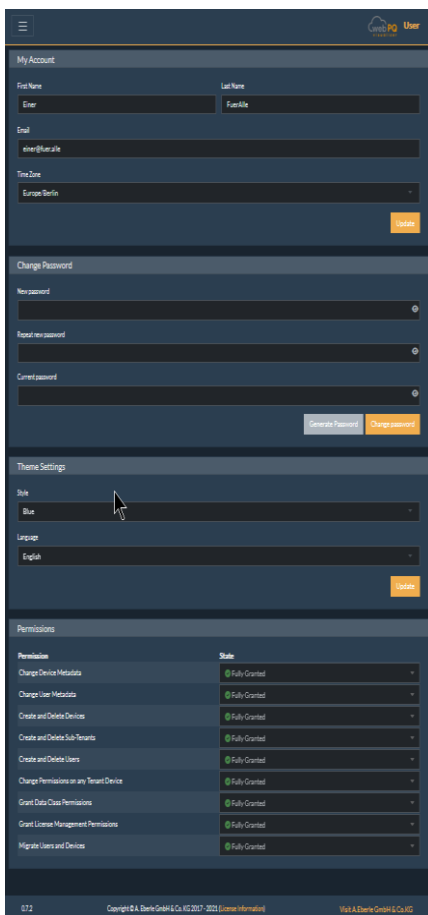
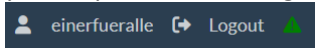
the respective line of the message to be activated .



## 6.7 Account settings

Each user can make his or her own individual settings, such as language, software style and password settings.

To access the settings, click on the user name in the upper right-hand area:



### ► My account

In addition to personal data such as name and email address, the time zone, which is important for the display in the software, must also be set in the account settings.

### ► Change password:

Passwords can also be changed in this area by entering the *current password*. After entering the *new password* and the previous password, the new password is saved in the system with the button "Change password".

Using the "Generate Password" button, the user can have the system generate a password according to the password policy.

### ► Theme settings

In the theme setting area, you can choose between three styles of the software:

Blue , Black or Light

In addition, the language of the software can be configured here. Please note the information from 8.2

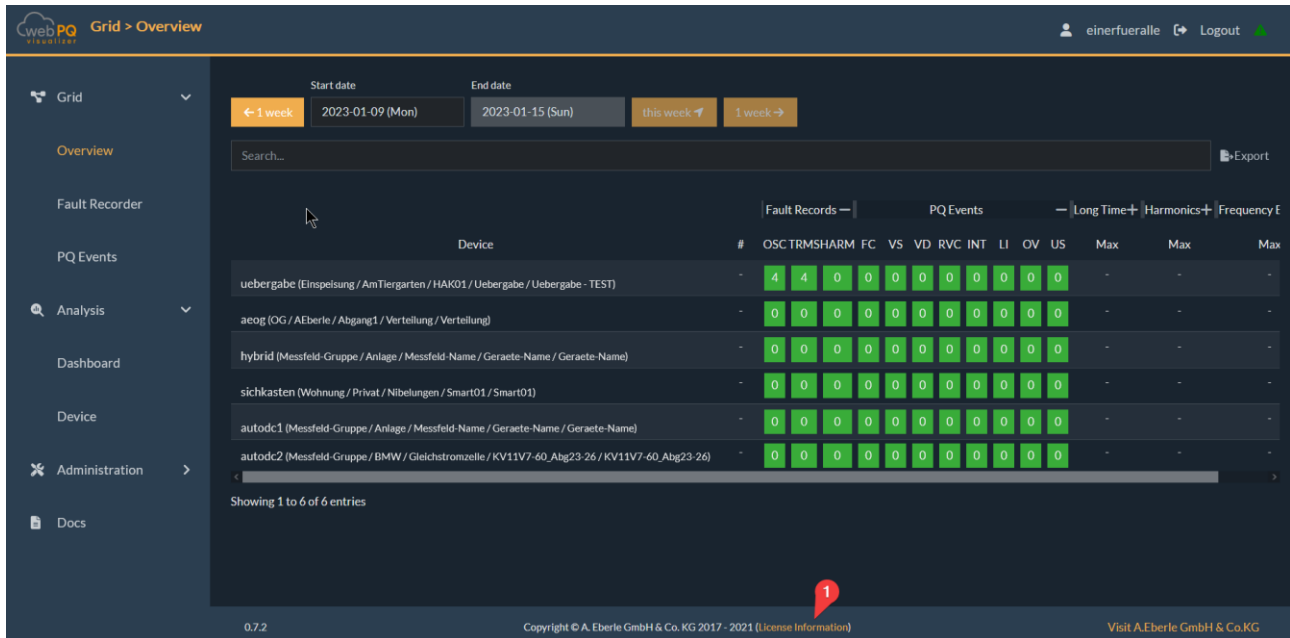
### ► Right

The rights of the user are clearly listed here. The settings of the rights are explained in chapter 6.5.1.1. explained



## 7. Licensing information

The licence information for the software and the components used can be found in the application itself in section #1



## 8. Knowledge Base / FAQ

### 8.1 Working with the browser

The WebPQ Visualizer application generally loads a lot of data. If it happens that the browser cannot reload any more data in the event of an error - e.g. if the connection to the server is broken - it can help to press the **F5** key. This starts a new query to the server.

### 8.2 Browser settings

#### ▶ Caching

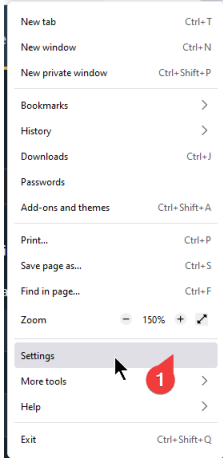
To enable smooth operation in the browser, it should be allowed in the browser to use cookies on the PC used. In addition, the cache should remain persistently stored at least for the application "WebPQ<sub>Visualizer</sub>". In the so-called "local storage", meta data and client-specific settings such as settings of the "Analysis Cockpit" are stored locally by the WebPQ<sub>Visualizer</sub> application in order to prevent unnecessary data transfers from the server to the client and to ensure fast analyses. If the cookies are always deleted after exiting the browser, settings are not stored persistently and may have to be made again by the user. To prevent this, we recommend setting exception rules in the browser for the application!

To do this, proceed as follows (example using the browser "Firefox")



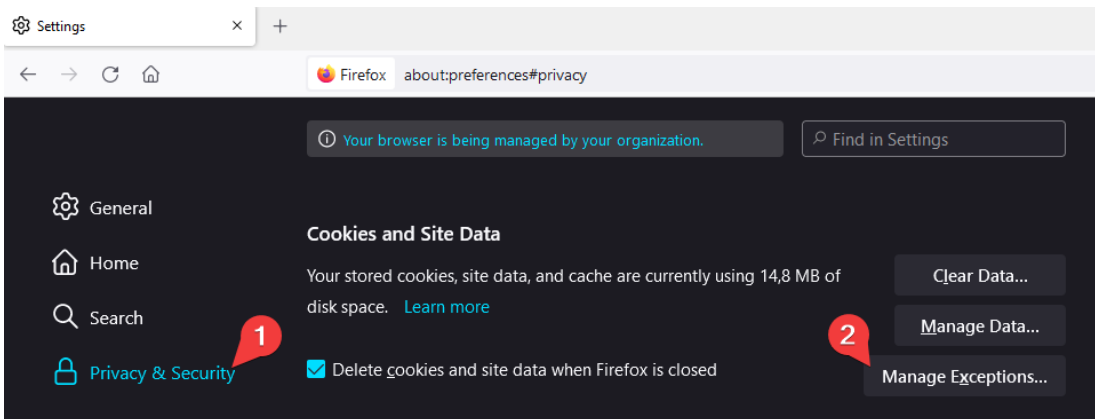
---

- Opening the settings in the browser (1)



- Switch to the "Privacy and Security" settings (1)

If the checkmark "Delete cookies and website data when exiting Firefox" is set here, the "local storage" is deleted when the browser is closed and the above-mentioned case can occur! It is then advisable to add an exception via (2) for the application (domain).





## 8.3 Service

The WebPQ service can be started via the console, so that the log outputs are output directly in a console.

```
Microsoft Windows [Version 10.0.19044.2364]
(c) Microsoft Corporation. Alle Rechte vorbehalten.

C:\Users\Shingala>cd C:\Program Files\WebPQ

C:\Program Files\WebPQ>WebPQ.exe --console

C:\Program Files\WebPQ>
[root][2023-01-11T15:16:47.418Z] info: For help on this command, call <command> help
[root][2023-01-11T15:16:47.418Z] info: Starting the default action, which is admin.
[root][2023-01-11T15:16:47.421Z] info: Found a settings.json file at C:\ProgramData\aeberle\webpq\settings.json and using this
for reading the settings.
```

## 8.4 Silent installation

Silent installation can be achieved by adding the following command line parameters:

```
> WebPQ_Setup_1.0.0.exe /S /D=C:\MyFolder\WebPQ
```

Further information can be found here: [https://nsis.sourceforge.io/Which\\_command\\_line\\_parameters\\_can\\_be\\_used\\_to\\_configure\\_installers%3F](https://nsis.sourceforge.io/Which_command_line_parameters_can_be_used_to_configure_installers%3F)

The uninstall programme is located in the installation directory as Uninstall WebPQ.exe.

It can also be started in the background with the parameter /S.



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## 9. Updates

The WebPQ<sub>visualizer</sub> software is continuously developed further. Updates are generally free of charge within the licence period of 12 months and can be downloaded directly from the homepage [www.a-eberle.de](http://www.a-eberle.de). In general, it is recommended to always install the latest version in order to patch any security gaps that may have occurred. For update notifications, the company A.Eberle GmbH has a portal at <https://www.a-eberle.de/news/anmeldung-kundenportal/>.

The update can be executed directly via Setup.EXE on the WebPQ server. Administrative rights are required for this!

### NOTE!

Back up your database before updates to avoid data loss.

➔ Contact A-Eberle for service cases

Service address:

A. Eberle GmbH & Co KG  
Frankenstrasse 160  
D-90461 Nuremberg

## 10. Product warranty

A. Eberle warrants that this product will remain updatable for a period of 12 months from the date of purchase

Warranty does not apply to damage caused by:

- Accidents
- Misuse
- Abnormal operating conditions.

To make a warranty claim, contact A. Eberle GmbH & Co KG in Nuremberg.



A. Eberle GmbH & Co. KG

Frankenstraße 160  
D-90461 Nuremberg

Phone: +49 (0) 911 / 62 81 08-0

Fax: +49 (0) 911 / 62 81 08 99

E-mail: [info@a-eberle.de](mailto:info@a-eberle.de)

<http://www.a-eberle.de>

WebPQ Version 1.0

Version: 18.01.2023 14:19